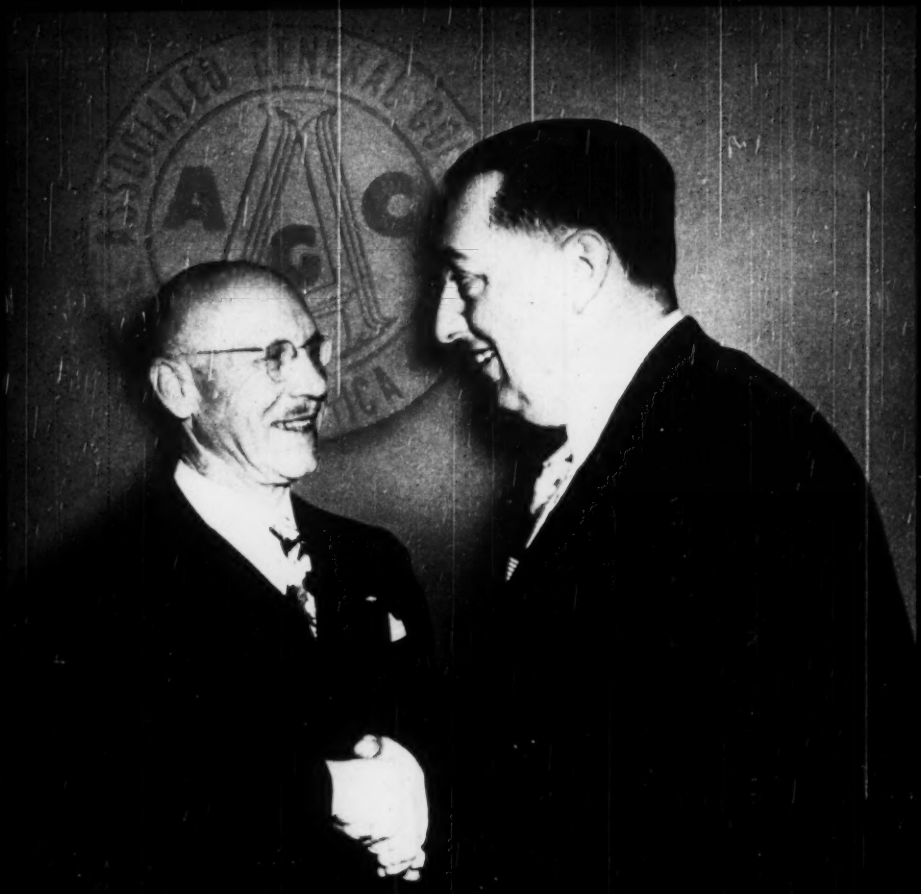
ENGINEERING NEWS-RECORD



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ENGINEERING NEWS-RECORD

VOLUME 144 MARCH 2, 1950 NO. 9

WALDO G. BOWMAN
Editor

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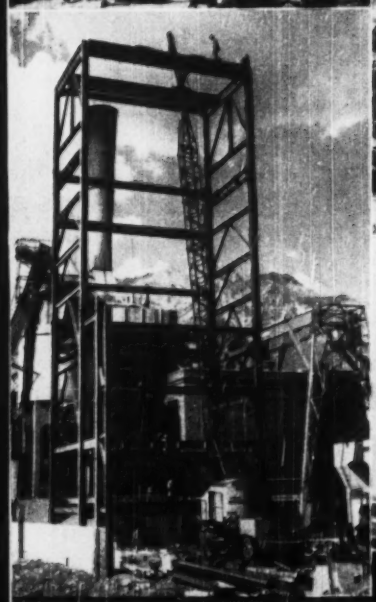

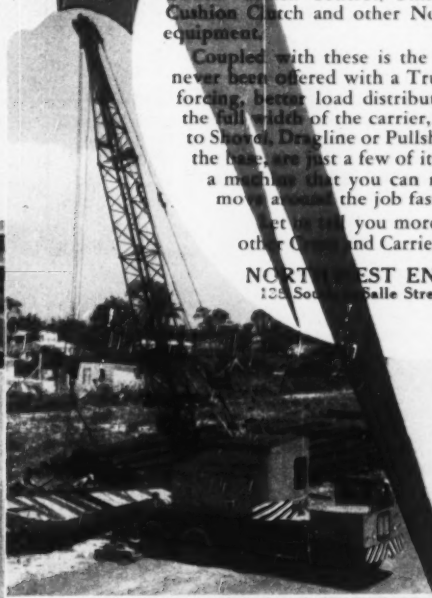

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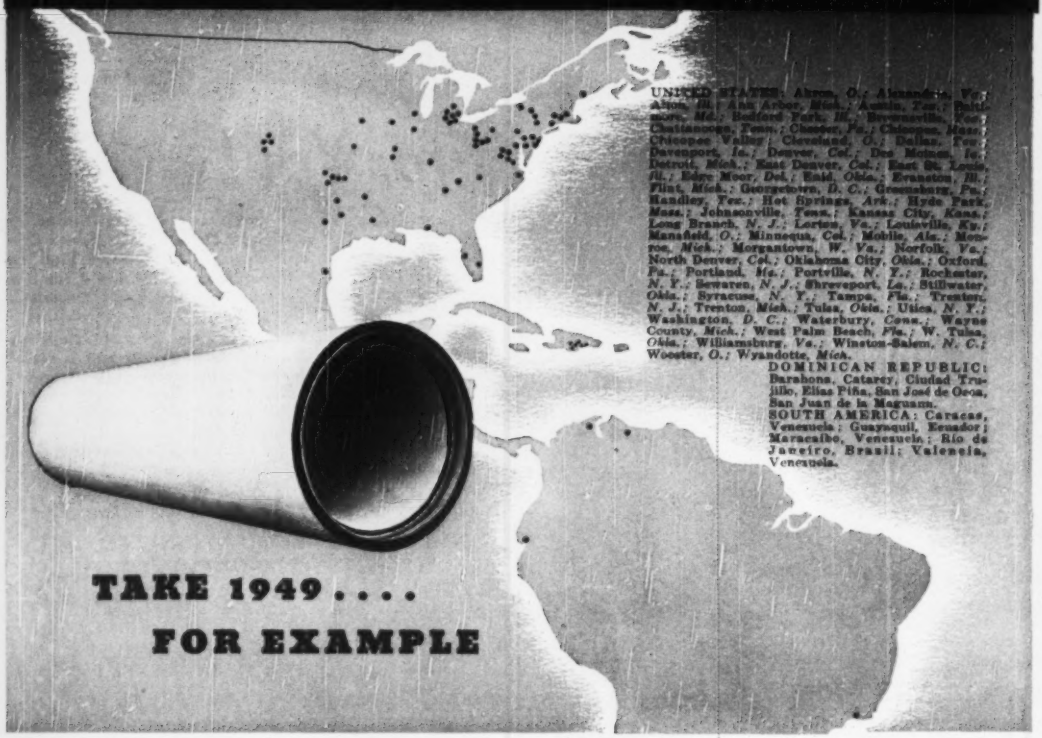
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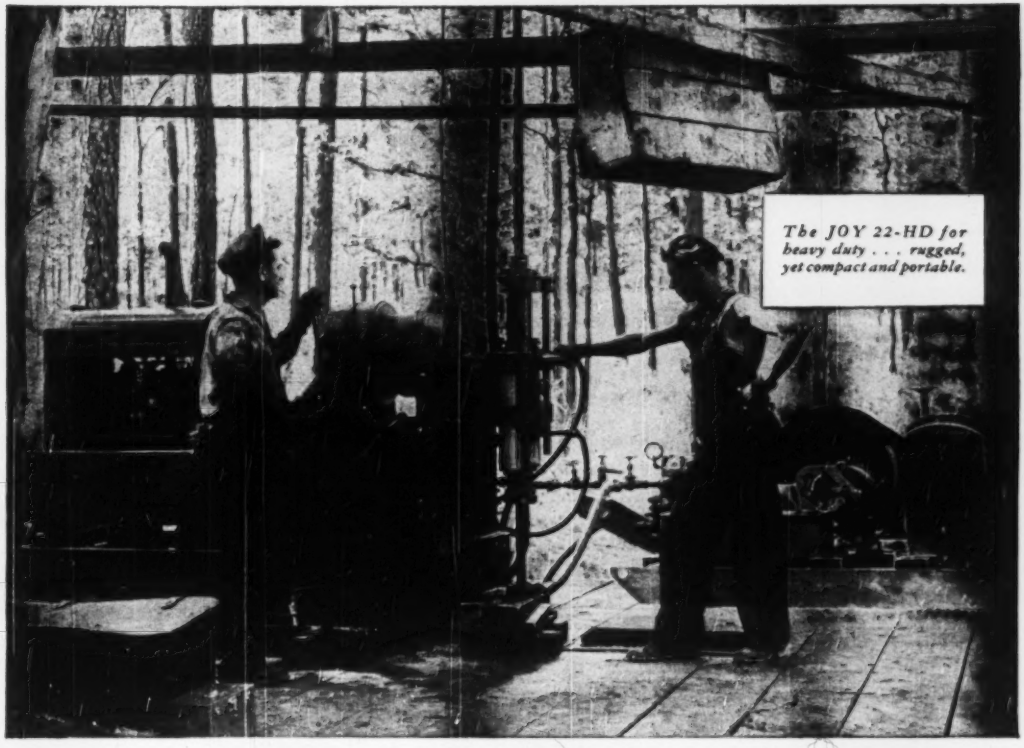

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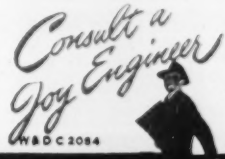

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more footage drill, per shift

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Rust and wear — chief causes of short drill life and reduced efficiency — are no problems when you lubricate with *Texaco Rock Drill Lubricants EP*. These "extreme pressure" lubricants ward off wear under the severest operating conditions, and inhibit rust whether drills are running or idle.

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Texaco Rock Drill Lubricants EP meet the exacting specifications of leading rock drill manufacturers and the Compressed Air and Gas Institute.

Another step to improve drilling efficiency is to make sure your air compressors deliver full volume and pressure. You can do this, regardless of your operating conditions, by using the recommended Texaco air compressor oil.

Let a Texaco Lubrication Engineer help you increase efficiency and reduce costs in all your operations. Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write:

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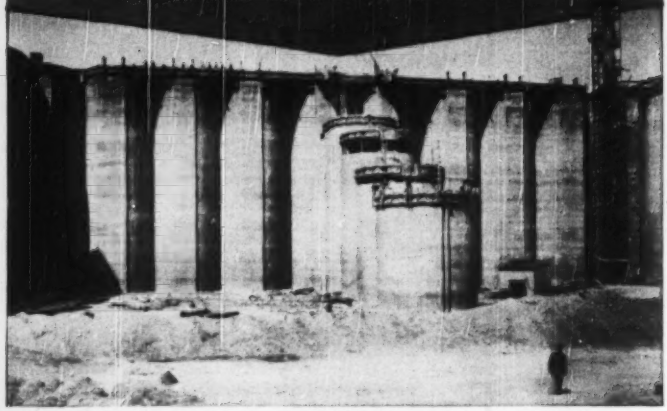
Koppers PRESSURE-CREOSOTED PILES



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13 MILLION BUSHELS OF GRAIN! That's the enormous capacity of one of the world's largest single-unit grain elevators. A lot of grain . . . a lot of weight, too. And this gigantic grain elevator at Port Albany, N. Y. is supported by approximately 7,400 Pressure-Creosoted Foundation Piles. Proof, indeed, that timber piles easily carry heavy loads.

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Koppers Pressure-Creosoted Timber Piles provide permanent, economical foundations. A thorough permeation of creosote protects them against termites and acid or alkaline soils; also, against fungi—the *sole* cause of decay. These piles are low in first cost—usually lower than other permanent pile materials. And, no small factor, they are ready to drive when received.

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For *your* protection, Koppers now burns its brand into every one of its pressure-creosoted piles; this brand is your assurance of quality. The Koppers Brand is placed 10 feet from the butt of each pile. You and your inspector can tell at a glance exactly what you are getting in preservative and retention.

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View of completed grain elevator at Port Albany, N. Y.

NEWS BRIEFS

Whitewing, 1950 Model—New Yorkers who can't find room in crowded midtown restaurants will soon be able to eat their lunches off the sidewalks surrounding the Waldorf-Astoria Hotel. At least, that's the claim of former Sanitation Commissioner William J. Powell, who has joined Sidewalk Sanitation Service, an agency which Powell says will make pavements "clean enough to eat from." Uniformed attendants will give the Waldorf's sidewalk daily "facials", which include high-pressure-steam-gum-removal, mechanized scrubbing and sweeping, and, believe it or not, "patrol sweeping by SSS Litter-eradicators."

Everbody Wants One—New Jersey still hopes to attract U. S. Steel's proposed east coast steel plant across the Delaware from that 3,800-acre site at bought recently in Pennsylvania. Governor Driscoll hopes that tax changes can be made in New Jersey which would bring the plant to New Jersey.

Correction—Low bid on a diesel-powered intake on the Hudson River was $3,018,000—not $2,950,000, as reported last week (ENR Feb. 23, p 24).

More Traffic Relief—Chicago's Mayor Kennelly has authorized immediate construction of the Congress Street superhighway bridge across the south branch of the Chicago River. It will carry traffic from a point beneath the main postoffice across the river on a double bascule bridge, through cloverleafs to Wacker Drive and other Loop streets. East and westbound traffic will cross on separte bridges.

Financing Help—Buffalo, N. Y.'s city council has approved a resolution seeking creation of a port authority for that city. Primary purpose is restoration of the waterfront, but other fields for the agency could be operation of an airport, parking ramps, garages, warehouses and similar facilities.

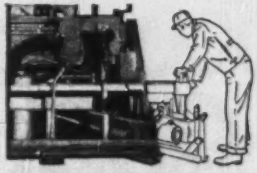
State Aid, Please—Missouri's League of Municipalities has launched a drive to obtain state aid for maintenance of state highways inside corporate limits. It's tied, in part, to Missouri's pending gas tax increase, which faces a statewide vote this spring.

Hear! Hear!—Pacific Gas and Electric Co. has asked a rehearing of a Fed-

(*Continued on page 11*)

Here's why you want a Jaeger Model BP-5

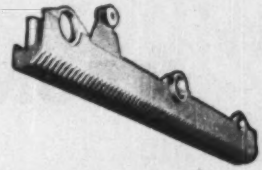
1. AUTOMATIC MATCHING of any adjacent course, curb, gutter or other grade line.



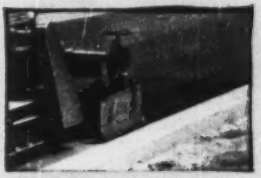
2. TWIRL A WHEEL TO CHANGE WIDTH: Lays any width 5'8" to 12'6", without adding parts.

3. SMOOTHEST RIDING SURFACES: 12' longitudinal floating runners equalize screed level.

4. NO PREMATURE SEALING: Weight and traction are on the hard subgrade or completed course —never on the newly-laid surface.



5. MORE UNIFORM MAT: Fast-oscillating, bevel-toothed screeds, tiltable as needed, work material to a uniform density not possible with tamping.



6. LAYS FLUSH TO CURBS and blends perfect-sealing joints between lanes.

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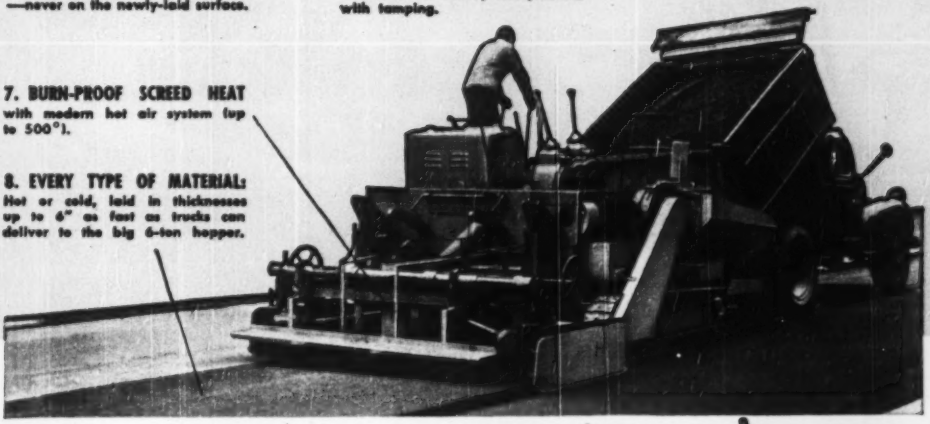
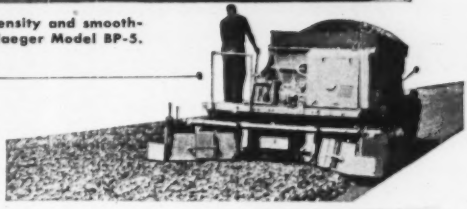
8. EVERY TYPE OF MATERIAL: Hot or cold, laid in thicknesses up to 6" as fast as trucks can deliver to the big 6-ton hopper.



For ability to lay all types of bituminous pavements to uniform density and smoothness, under varied conditions, no other machine approaches the Jaeger Model BP-5.

and its low cost team-mate



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(Continued from page 8)

eral Power Commission order granting a rehearing to the Interior Department. Interior's still fighting the granting of a power development license to PG&E.

No Capital Shortage—New England savings, over a period of three months, equal the amount required to erect that steel mill New Englanders still want. Thus, John Kelley, technical consultant to the New England Council's steel committee, says that if steel companies won't put up a mill in the region, residents themselves will have to do it. Kelley says such a mill is an "economic must" for New England.

Mechanics Love It—Connecticut's new highway garage and administration building at New Haven has radiant heating throughout its first floor. It figures the installation will make life happier for mechanics and will be better for vehicles—faster deicing, easier starting, rust prevention and shorter maintenance time.

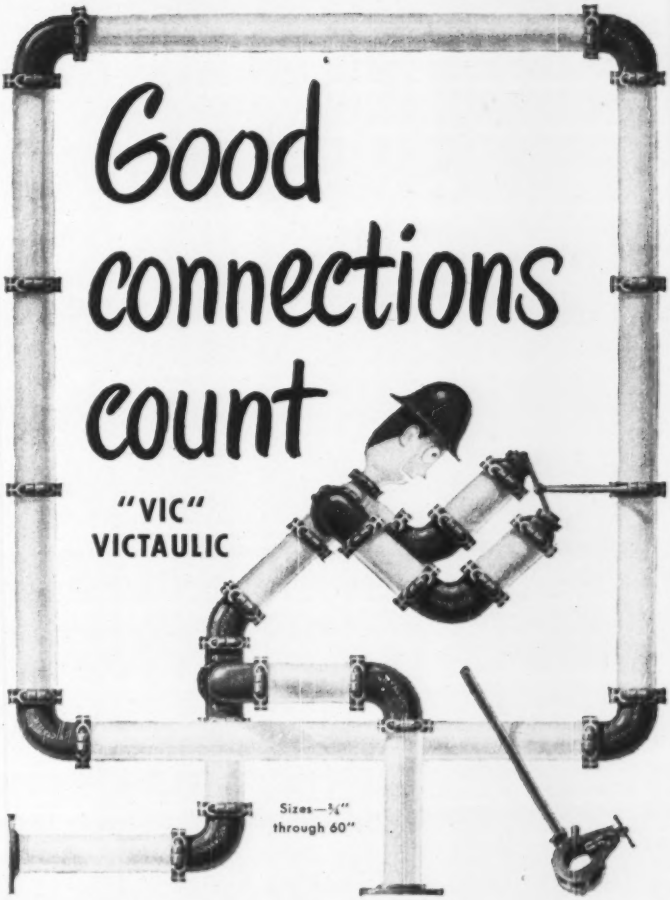
Airport Under Study—Sverdrup & Parcel, St. Louis consultants, have been authorized to draft master plans for a second major airport to be established at Parks Municipal airport, on the east side of the Mississippi River. The study is to determine what facilities are needed, what federal funds would be available and how much the project would cost.

Truck Rates Change—Massachusetts' Public Utilities Commission has set new rates aimed at halting the overloading of dump trucks and the necessity for them to speed. The new rates, to be paid either on a tonnage or yardage basis, were sought by truckmen who complained that they had to overload and speed to meet contractors' demands.

Traffic Goes Round and Around—Boston's Traffic Commission has before it plans for two rotary traffic systems to relieve congestion in the Back Bay and South Station sections. Traffic would flow on one-way streets in a rotary pattern.

So Much From So Few?—Highway damage resulting from motor trucks is done largely by about 2.4 percent of all trucks, according to C. F. Rogers, special assistant engineer for the Bureau of Public Roads. He said more than 90 percent of the highway freight is moved in medium or light trucks. Road engineers as a whole, he

(Continued on page 13)



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26TH VICTAULIC YEAR

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LAYING DOWN ON THE JOB! It takes only 25 seconds for the helicopter to lay this 400-foot pipe line. The hose, developed by United States Rubber Company, is folded into a special container and released at the press of a button. Its civilian and military uses are almost infinite.

FISHY SUCCESS STORY. The 500,000 fish in this boat were unloaded in less than an hour by a special 12-inch vacuum hose compounded by U. S. Rubber. The hose sucks the fish out of the boat, sends them speeding to a storage bin 1500 feet away.

EASY PICKINGS! This vacuum cranberry picker works with great speed, never gets tired. U. S. Rubber made the special hose, aided cranberry growers in developing the machine, thereby increasing the yield.

You'd be surprised to find how many different things rubber hose can do... things it never had been called upon to do before. Come to the foremost authorities in the field, U. S. Rubber, when you have any question that hose may solve. They know about techniques and new methods which may materially lower your operating costs. Write:

A PRODUCT OF

U.S.RUBBER
SERVING THROUGH SCIENCE

UNITED STATES RUBBER COMPANY

MECHANICAL GOODS DIVISION, ROCKEFELLER CENTER, NEW YORK 20, N. Y.

(Continued from page 11)
added, are convinced that today's average highways can't support axle loads of more than 18,000 pounds.

No H-Bomb Needed—Earthquakes or high winds could displace heavy concrete slabs which form a pyramid atop Los Angeles' City Hall, according to Public Buildings Engineer William Blakely, who wants them replaced with stone-colored aluminum sheets. Despite a design aimed at obviating earthquake and wind-sway effects, and despite repairs, recent earth shocks have opened old cracks and started new ones, Blakely warned.

Technological Unemployment — There'd be 250,000 engineers in the United States today, rather than the 1,000,000 "who call themselves engineers," according to C. G. Roush, of the National Society of Professional Engineers, "if the public had, today, the properly enforced right to disqualify those who are not properly qualified to practice engineering."

THE COVER

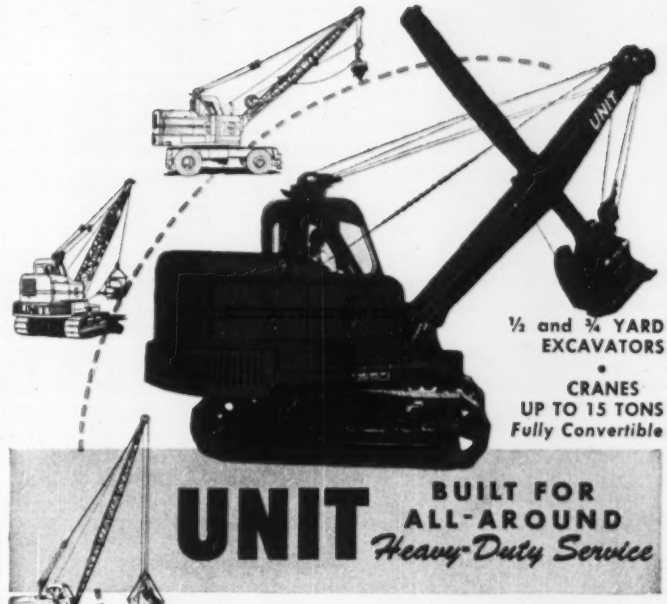
The photo-montage man's hand is quicker than the eye, and so it must be confessed that the handshake between Retiring AGC President Adolph Teichert Jr., left, and New President Walter L. Couse never took place as shown.

As a matter of fact, the hand that Mr. Teichert is shaking doesn't even belong to Mr. Couse, but is the property of Dwight W. Winkelman — who was AGC president two years ago.

The photo from which the cover was made originally showed four AGC bigwigs: H. E. Foreman (who was standing at Mr. Teichert's right); Mr. Teichert; Mr. Winkelman and Mr. Couse (who was at the extreme left, watching Teichert and Winkelman shake hands). The poses of the two principals were too good for our artists to miss—and you see the result.

Mr. Couse, when not using other people's hands, is president of the Walter L. Couse Co., general contractors of Detroit, Michigan. He has been president of the Detroit chapter twice; has been chairman of the AGC's building division; and has served as a member of the Advisory Council of the (U. S.) Senate Commerce Subcommittee on Trade Policies. His business organization is primarily a building contracting one, which has, among other things, built major bridges in six states and in Canada. He took office as AGC president this week.

Mr. Teichert, president of A. Teichert and Son, Inc., heads a highway, heavy and railroad construction firm which headquarters in Sacramento, Calif.



½ and ¾ YARD EXCAVATORS
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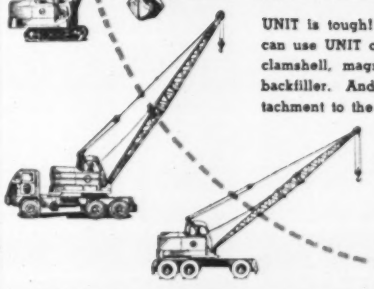
CRANES UP TO 15 TONS
Fully Convertible

UNIT BUILT FOR ALL-AROUND *Heavy-Duty Service*



UNIT is tough! UNIT is versatile! That's why you can use UNIT on any type of job requiring shovel, clamshell, magnet, dragline, trenchoe, grapple or backfiller. And it's easy to change from one attachment to the other, right on the job. UNIT gives you all the power and speed you need, plus these exclusive features: Automatic traction brakes . . . Disc-type clutches . . . Drop forged alloy steel gears...Splined shafts...One-piece cast gear case ...Straight-line engine mounting. Mobile and Crawler Models Available

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6315 W. BURNHAM ST., MILWAUKEE 14, WIS., U. S. A.

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SHOVELS • DRAGLINES • CLAMSHELLS
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IF you want Ornamental bronze, aluminum or stainless steel NEWMAN makes it "equal to the finest" and at the best possible price. It will pay you to ask for our bid every time on doors, complete entrance units, canopies, railings, gates, grilles, tablets and letters.

WRITE TODAY!
Get folders featuring metallic work famous for 68 years, promptly and POSITIVELY WITHOUT OBLIGATION

NEWMAN BROTHERS, INC.
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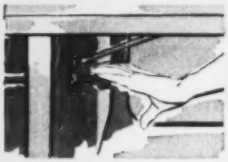
CHAMPION

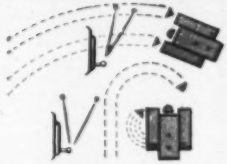
the NEW



Positive all-weather starting on gasoline, with quick change-over to full diesel operation, all from the seat.

Instant speed change up or down one speed, or stop, without declutching. Planet Power drive does it!

Separate reverse lever for quick change of direction. The tractor moves in the direction the lever is moved.



Planet Power steering puts turns with power on both tracks, feathered turns and pivot turns at your fingertips.

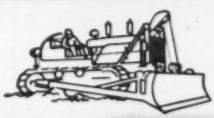
HERE ARE SOME OF THE CHAMPION'S EXCLUSIVE FEATURES

Self load and run with scrapers of 17-yard capacity—and shift gears on-the-go with the rolling load.

Cut waste shifting time out of work cycles, provide the best speed for every operation, 8 speeds in each direction!

Work on grades up to 100%. Its power, ground contact, balance and lubrication are right for licking any grade.

Handle heaviest loads on gradual turns as easily as straightaway because both tracks are powered in the turn!



"There Is Nothing Like The TD-24. It Can Out-Push Any Tractor On The Job."

"Here is the Champion of Crawlers," owners will tell you, "the tractor that will pull down your dirt moving costs."

Contractors and operators who have observed or operated the new International TD-24 diesel crawler are spreading the news. Here is a tractor that out-works and out-performs every other crawler known to the industry!

Operators compete with each other from Florida to Alaska to get "the big red devils," the TD-24's, assigned to them. They'll tell you no other tractor can compare with the TD-24 for ease of operation or work capacity!

# of Crawlers

INTERNATIONAL TD-24

Comfortable to ride, powerful, fast, safe and economical to operate, the TD-24 is revolutionizing ideas of what crawler tractors can or cannot do on the big jobs.

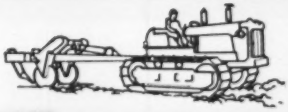
Regardless of what equipment you now use, visit your International Industrial Power Distributor and get a TD-24 demonstration. See for yourself what the TD-24 can mean to your operations in shortened time, reduced costs, extra profits.

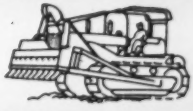
INTERNATIONAL HARVESTER COMPANY • Chicago

INTERNATIONAL HARVESTER

INTERNATIONAL INDUSTRIAL POWER

Tune in "Harvest of Stars" with James Melton, Sundays, N. B. C.





FIRST STEAM HOSE TO GIVE OVER 2000 HOURS CONTINUOUS SERVICE

at 200 lbs. Working Pressure!

Steam Hose users have long been stymied by the costly problem of tube-swelling during normal service life of ordinary hose. They turned to BWH for the solution.

BWH came up with the answer . . . CONCORD #20! In building this revolutionary new hose, the rubber tube was first locked securely between two braids of high tensile steel wire. The cover and static wires were added. Then the new construction was subjected to a *continuous flow* of 200 lbs. working pressure *for over 2000 hours!* At the end of this record-smashing test, the tube showed no evidence of hardening or swelling! Couplings were re-attached without the slightest difficulty because the original inside diameter of the tube was maintained throughout!

In addition to its many other advantages, Concord #20 features a specially treated cover which protects it against oil, grease, heat, strong sunlight and abrasion!

Ask your BWH distributor to demonstrate the whip-like flexibility of this rugged new hose. Check the braids of high-tensile steel wire which give Concord #20 strength without bulk. Concord #20 Steam Hose does the job without breaking the operator's back . . . is assurance against "flash" explosions . . . and, from the inside out, is your guarantee of unequalled service life.

HAVE YOU A JOB WHERE STAMINA COUNTS?
Bring us your toughest problems. We're specialists in solving them. Consult your nearest BWH distributor or write us direct.

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you can't fool a knowing customer

3 CUBIC YARD MIXER
GUARANTEED TO HOLD, MIX AND AGITATE ITS RATED CAPACITIES AND CERTIFIED TO COMPLY WITH TRUCK MIXER MANUFACTURERS BUREAU STANDARDS AS APPROVED BY N.R.M.C.A
NATIONAL READY MIXED CONCRETE ASSOCIATION
NRMCA
4 1/4 CUBIC YARD AGITATOR
N.R.M.C.A REGISTRY N°

*

The Bureau rating plate is available to any manufacturer who meets its quality standards and requirements.

The truck mixer that supplies your job either bears this rating plate — or doesn't.

If you see this plate, then you can be sure that the mixer has the proper drum design, accurate water control, speed of revolution and full specified amount of ***free mixing space*** proved necessary to thoroughly mix or agitate its rated load.

It is customer's protection against questionable concrete delivered from non-standard truck mixers. It assures you of the best quality concrete on the job.

Affiliated with The National Ready Mixed Concrete Association

BLAW-KNOX DIVISION
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Truck Mixer Manufacturers Bureau

Ryerson Reinforcing Steels

Quickly from Stock

Yes—reinforcing bars and accessories, spirals, wire mesh, expanded metal—all the steels needed for reinforced concrete construction are shipped in a hurry when you call your nearby Ryerson plant.

And for your convenience, Ryerson service on reinforcing bars covers every step from estimate to dependably scheduled deliveries. Ryerson furnishes you with setting plans when needed; accurately cuts and fabricates your steel, using only bars that conform to ASTM specification A305-49; identifies every piece for easy placement, with metal tags that can't be torn or defaced. In every step, close cooperation between the men who engineer, schedule and fabricate your job assures faithful execution of all requirements.

Moreover, the completeness of Ryerson stocks adds another convenience to Ryerson service. Not only reinforcing steels, but structurals, plates, bars, sheets—everything in carbon, alloy and stainless steel awaits your order. So one source, your nearby Ryerson plant, can furnish everything needed for the biggest job. Still no job is too small to receive prompt personal attention. Call us for complete steel service.

Hi-Bond from Ryerson for Greatest Grip Meets and Exceeds New ASTM Spec. A305-49

With Hi-Bond reinforcing bars, designers can take full advantage of the higher compressive strengths of modern concretes and the higher tensile strength of new steels. Write for new bulletin describing Ryerson service on this unique reinforcing bar. Ryerson Steel, Box 8000-A, Chicago 80, Illinois.

RYERSON CERTIFIED STEELS

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CINCINNATI • CLEVELAND
DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO

THE CONSTRUCTION WEEK

CONSTRUCTION PENSIONS?—Construction industry leaders aren't saying anything for publication, but they're watching very closely to see what follows from Del E. Webb's recently announced pension and profit-sharing plans for certain employees. Speaking for his firm (Del E. Webb Const. Co., Phoenix, Ariz.) Webb announced the plan two weeks ago, said the company will bear the entire cost. All present and future payroll personnel at main, district and field offices, and all job superintendents, are included, provided they have completed one year of service (for profit-sharing) and three years of continuous service (for the pension). Remembering that a plan to have its own employees work under a pension plan was shunted aside by the membership a year or so ago, AGC headquarters refuse comment for the moment. However, this week's convention at San Francisco may bring the whole proposal into the open.

NO COMMENT—Defense Department orders have tied the Army Engineers even more tightly than before in the matter of replying to charges against its conduct of civil works. With an eye on coming appropriations needs, the department has ordered complete silence.

ANTI-DIVERSION DIVERSION—States aren't the only governmental agencies that can divert highway funds. The federal government can, too —away from states which divert highway revenues into non-highway expenditures. That may happen to New Jersey as a result of Governor Driscoll's proposal to use $22,000,000 of road funds for general budget expenditures (ENR Feb. 23, p. 17). Potential penalty, according to the Bureau of Public Roads, is a $2,795,630 cut in federal aid for New Jersey's highway programs. Driscoll says the diversion isn't really that because local governments spend more on roads than they receive in state aid. But the state was penalized once before—by a token withholding.

PRESENT COMING?—State and local governments soon may get a present from Uncle Sam: The Bureau of the Budget is drafting a bill that would grant localities big cash payments in lieu of taxes on federal property within their boundaries (ENR Feb. 9, p. 23). Right now, when the U. S. takes over, the property goes off the tax rolls, the cost of police and fire protection goes up and the local government has to find other funds to fill the gap. (In New York the tax loss is figured at about $15,000,000 a year, in California $34,000,000.) The new bill would permit: Taxation by the community of commercial-type projects (barge docks, industrial plants); cash payments on all other federal property (excepting AEC installations and U. S. mint); no taxes on property acquired before some arbitrary cut-off date (probably 1935 or 1938).

MERGER HEADACHE—Among the most delicate merger plans in the Defense Department is one to unify the construction engineering services. Army Engineers now handle all construction for the Air Force as well as the Army. From the record, the Bureau of Yards and Docks must be sleeping poorly these nights. But it's not an open and shut case, for the Bureau has a lot of specialized work that can't be done by just anyone.

NEW TACK—Next in line in the labor program (after the matters of pensions and health insurance are cleared-up) will be guaranteed employment, according to New York labor experts. A 58-page analysis by the Division of Research and Statistics, New York Department of Labor (80 Centre St., N. Y.) points out that almost 400 firms in the state now guarantee a full week's work in any week in which an employee goes to work—and some firms are already guaranteeing an annual employment.

NO LUCK WITH FTC—The steel business isn't making the progress in its basing point dispute with the Federal Trade Commission that had been expected (ENR Dec. 22, 1949, p. 17). The outlook now is that FTC will turn down the industry's plan, even, though some months ago, approval was expected of a ruling that freight absorption to meet competition was ok so long as it was not unlawfully used to lessen competition. Now, the feeling is that such a compromise probably will be rejected. Commissioners reportedly feel that the compromise wouldn't end the basing point abuses.

MANEUVERING—It's an interesting sidelight on parliamentarianism: Rivers are blocking highways. It works like this: The Senate Interior Committee has taken over (and thus blocked action on) the flood control-rivers and harbors authorization bill, for its Columbia River hearings. The House Public Works Committee, which passed the omnibus bill last August, is now needling the Senate for action—and promises (according to Rep. Whittington, who is chairman) that it won't take any action on federal highway aid until the Senate clears the rivers.

Thanks to Tanks of Concrete

NATION'S LEADING BREWERS PROTECT QUALITY, IMPROVE EFFICIENCY

Starting tanks—**ANHEUSER-BUSCH**, St. Louis—fore-runner of many other concrete tanks at this great brewery.

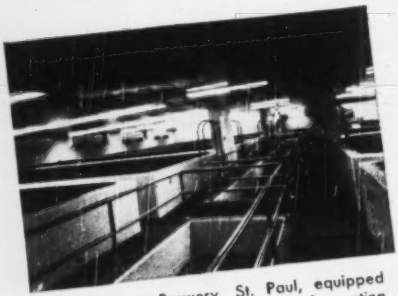
THE good brewer takes infinite pains in blending and cooking selected materials—then beer's quality and flavor depend on what happens in the fermenting and storage tanks. Twenty years ago, Borsari Tank Corporation of America advanced brewing technique with 'Ebon'-lined tanks of concrete.

Careful investigation of cements led Borsari in 1933 to use 'Incor' 24-Hour Cement. Outstanding performance resulted in continuing use of 'Incor' in repeat projects.

Designed to fit beer-making techniques, Borsari tanks are built with equal facility in new or existing structures, in any size and shape. The 'Ebon' lining is fused to the concrete.

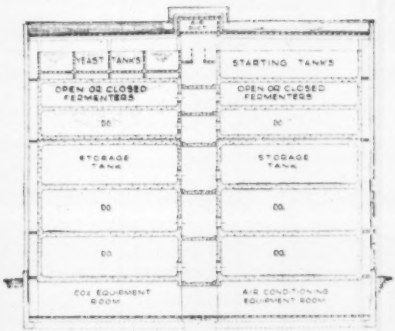
Borsari uses 'Incor' for economical job progress, because: (1) concrete must gain service strength rapidly for early stripping; (2) concrete must cure watertight in only 24 to 48 hours; (3) in Winter, 'Incor'* cuts heat-protection costs by 60%, speeds job progress.

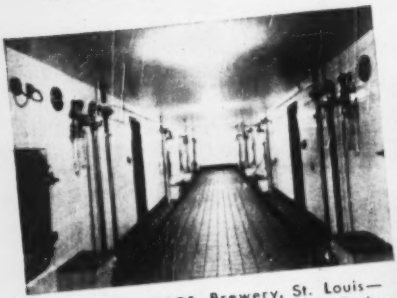
*Reg. U. S. Pat. Off.



THEO. HAMM Brewery, St. Paul, equipped throughout with open and closed fermenting tanks of 'Incor' concrete.

Right, typical multiple-story Borsari installation. Below, center, fermenting tanks, **DAWSON BREWERY**, New Bedford, Mass., built into existing building. Below right, fermentation tanks, **MILLER'S 'HIGH LIFE'** Brewery, Milwaukee. Introduced in U.S. in the early 30's, Borsari tanks now in use here total half-million barrels' capacity.





GRIESEDIECK BROS. Brewery, St. Louis—multiple-story closed fermenting tanks. Tanks, walkways, walls, stairways form completely monolithic structure.

LONE STAR CEMENT CORPORATION

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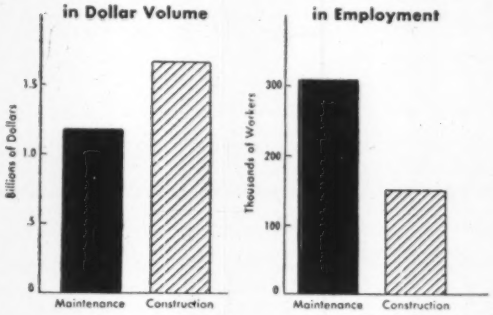
LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 27,000,000 BARRELS ANNUAL CAPACITY

Highway Maintenance Vs. Highway Construction —1949



Sources: Joint Committee on the Economic Report, Department of Commerce, Bureau of Labor Statistics, ENR

HIGHWAY MAINTENANCE IS BIG BUSINESS

The Joint Congressional Committee on the Economic Report, in studying the nation's highways and their part in the nation's economy, underscores the growing importance of highway maintenance.

Maintenance was a minor interest in the study, which was reported in ENGINEERING NEWS-RECORD Feb. 2. But the study's facts and figures show that it takes roughly twice as many men to maintain the nation's highways as it does to build new ones. In dollar volume of money spent, and in the amount of equipment used, maintenance is smaller than new work, but it compares favorably with the expenditures for new construction.

By the committee's report, it took a crew of 311,415 men to maintain the nation's highways in 1949. This figure does not include men employed in contract maintenance work. In comparison, the Bureau of Labor Statistics estimates that only about 150,000 men were engaged in building new highways in an average month of the year. In numbers, the highway maintenance force equals about one-eighth of all those employed in contract construction, according to estimates by the BLS.

In dollar volume, highway maintenance ran to a total of almost $1.2 billion in 1949. And it was roughly three-fourths of new highway construction expenditures, as estimated by federal agencies.

These figures indicate, of course, that labor is a much bigger share of total costs in maintenance than in new construction. In fact, almost one-half of the maintenance dollar goes to labor.

Like contractors on new work, maintenance men have been plagued by rising costs in the last 10 years. Their costs haven't risen quite as much. They are up about 95% since 1939, while highway construction costs have more than doubled. The reason: much maintenance work is done by Civil Service employees. By the same token, maintenance costs aren't expected to drop off as rapidly as highway construction costs.

The answer to rising costs has been greater mechanization. By the latest figures available, for 1948, maintenance crews were using 330,000 pieces of equipment with a value, or cost to reproduce, of $1.1 billion.

This, too, compares favorably with the amount of equipment used in highway construction. The best estimates available show that contractors on highway work use about $9 worth of equipment for each $10 worth of work done. These figures allow for contractors working about nine months out of the year and they are weighted to reflect the importance of the various types of machinery used in highway work. Overall, this points to a figure of about $1.5 billion worth of equipment used in highway construction.

That there's still room for more mechanization in maintenance is shown in budget figures: near 47% of the cost is labor. With the steady increase in highway use, and heavier trucks using a highway system much of which is badly worn or obsolete, demands on maintenance are growing. The pressure for mechanization, similarly, is still growing.

Rising costs in maintenance are having more and more of an effect on highway design. It pays, for example, to design wide, deep roadside ditches that will need to be cleaned only once or twice a year. The initial cost may be higher than an old-style drainage ditch that had to be cleaned several times a year, but the rising cost of maintenance makes it necessary to balance first cost against upkeep. The balance seems to be swinging toward first cost.

The same idea crops up in snow-removal. Today's mechanized farm needs a steady flow of fuel oil, gasoline, and supplies. That means keeping many country roads open the year around. And that, with costs going up, means it's often cheaper to design the road so that snow-removal will be easy, even if the initial cost is higher.

All this means that as the nation's road system grows, maintenance will become still more important, and will call for more engineering. And it will become more and more mechanized.

"It's good horse-sense to buy from a Distributor"

"Outside of our raw materials just about all of the parts and equipment we use are bought from local distributors . . . and for my money that's the only way to do business.

"We needed this line in here in a hurry. Our distributor had everything we needed in stock . . . and with the one phone call I got everything down to the last fitting. It was delivered the same day . . . in one truck. It took a lot of manufacturers to make the equipment, in half a dozen cities. I got it from one source . . . with one call . . . one purchase order . . . one invoice . . . one check.

"The distributor buys parts and equipment from all over the country . . . from a hundred or more sources. He buys in quantity . . . and delivers only as much as we want and need . . . when we want it. The rest he keeps in storage. He gives us service all along the line . . . with a distributor salesman who calls on us and knows our problems and requirements, almost as well as we do.

"When you come right down to it, our distributors are doing a lot for us besides providing a handy source for the things we need. They are saving us interviewing time in the Purchasing Department . . . a whale of a lot of clerical and bookkeeping costs . . . warehousing space . . . and time by the truckload.

One of a series of advertisements depicting the part played by the Distributor in the American Economy. The series is created and sponsored by The Kennedy Valve Mfg. Co.

THE KENNEDY VALVE MFG. CO., ELMIRA, N. Y.

ESTABLISHED 1877

OFFICE-WAREHOUSES IN NEW YORK, CHICAGO, SAN FRANCISCO • SALES REPRESENTATIVES IN PRINCIPAL CITIES

IRON-BODY AND BRONZE VALVES
PIPE FITTINGS

Bids on Design and Construction

NEW YORK'S BOARD OF WATER SUPPLY has just received bids on the "designs, construction and installations" required for its projected plant for chlorination and pumping Hudson River water into the Delaware Aqueduct. The plant is being built as an emergency measure so that speed in getting it completed and in operation is essential. Decision was reached, therefore, to call for bids on a complete package instead of waiting until the board's own staff or consultants had prepared complete designs on which contractors could submit bids for the specified construction and equipment.

Such procedure is common practice in Europe and South America, but it never has found favor here. The principal advantage claimed for it is that it brings a greater variety of engineering skills and ingenuity to bear on a particular problem. Some of the spectacular structures in Europe are believed to be an outgrowth of this practice. Advocates hold that greater economies are possible when contractors and engineers work together to develop a design on which construction bids are to be submitted.

On the unfavorable side stands the fact that the system places on the owner the decision as to whether a particular design on which a favorable bid is submitted is adequate or safe or most economical. Unless he engages independent engineering advice he may get into trouble.

On the pumping plant for New York City this latter consideration is not important as the Board of Water Supply has able engineers capable of evaluating the several proposals. As 17 contractors bid, the result of this evaluation will be eagerly awaited, the more so because of the character of the job. About 100 mgd of water a day must be chlorinated and lifted 600 ft before it can enter the aqueduct shaft. River intakes could be of various kinds. Numerous pump combinations could be used. Different construction materials and methods might be chosen. Not often in American practice is it possible to subject a project to money-backed solutions from so many different experts.

What Characterizes an Engineer?

ENGINEERS HAVE BEEN WRITING definitions of "engineer" and "engineering" for more than a century. As the field broadened, the definitions became more involved. When the time came to define engineering in license laws for engineers there was a new upsurge of definitions, but no one of them was entirely satisfactory. Most were too all-conclusive; they could be interpreted as covering many activities that are not engineering.

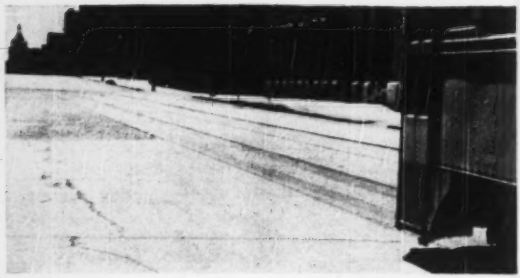
Now, as an adjunct to its work in evaluating educational curricula, the Committee on Engineering Schools of the Engineers' Council for Professional Development has written a new definition of an engineer. That committee came to the conclusion that before it could state with any definiteness what courses were essential to the training of engineers it should know what characteristics are peculiar to engineers. So, after considerable study, it has put forward the following definition:

"An engineer is characterized by his ability to apply scientific principles to design or develop structures, machines, apparatus or manufacturing processes, or works using them singly or in combination; or to construct or operate the same with full cognizance of their design, and of the limitations of behavior under specific operating conditions; all as respects a specific function, economics of operation and safety to life or property."

In presenting this definition for discussion the committee points out that most of the current confusion in the colleges with respect to what is engineering arises from failure to recognize the difference between the sciences and engineering. As an example of the difference it cites the fact that curricula in mining engineering and geology both contain courses in mathematics, physics, chemistry and geology. But the mining engineering course also contains courses in mechanics, hydraulics, hydraulic machinery, heat engines and electrical equipment. The distinguishing difference, the committee states, lies in the fact that the mining engineer is going to design, construct and operate, whereas, the geologist is not being trained to carry out any of those procedures.

The committee's definition deserves wide discussion and study, outside the teaching field as well as in it. Within the field of engineering education it could well serve to center attention on subjects that are essential to the training of a man to meet the requirements set up in the definition. That in turn might result in dropping many special engineering courses, which have multiplied beyond all reason in the past few decades.

Outside the schools, a carefully thought-out definition of this kind could lead to revision of the definitions in most of our license laws. This also would be a welcome as well as a much needed change. When the definition in the model license law was written, more thought was given to making sure that it covered all kinds of activities that engineers like to consider engineering than to what were the peculiar characteristics that set engineers off from their fellows. Now that the idea back of the license laws has been accepted nationally, the engineering profession should agree on a definition of engineering that will stand up under the most critical court scrutiny.

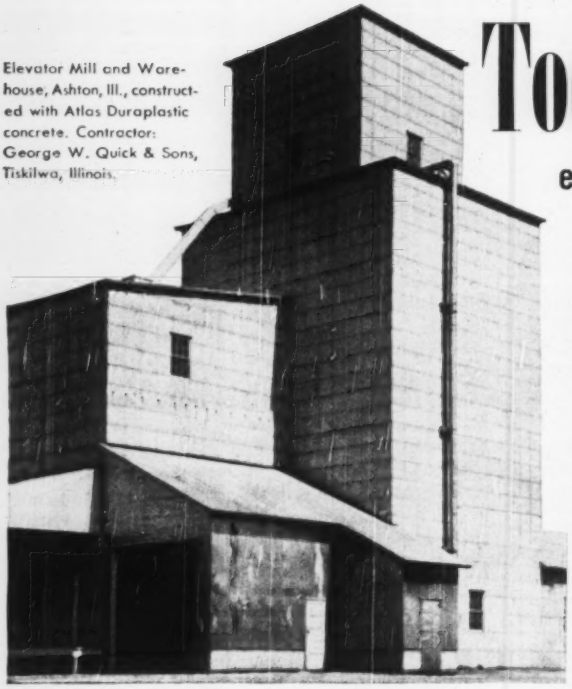


Ten Years Ago...

A Decade of ATLAS DURAPLASTIC AIR-ENTRAINING PORTLAND CEMENT

in August, 1939, this concrete test paving was laid in Second Avenue North, Minneapolis. The badly scaled section of roadway in the background was made with regular portland cement. The foreground section, *laid at the same time*, was made with Atlas Duraplastic—the first commercial use of the air-entraining portland cement originated and developed by Universal Atlas.

Both sections, subjected to the severity of ten Minneapolis winters and to heavy applications of de-icing salts, are shown just as they appeared in July, 1949—convincing proof of the characteristic durability of Duraplastic concrete, of its high resistance to freezing-thawing weather and the scaling action of de-icing salts. Longitudinal structural crack shows some ravelling. Note perfect transverse joint.



Elevator Mill and Warehouse, Ashton, Ill., constructed with Atlas Duraplastic concrete. Contractor: George W. Quick & Sons, Tiskilwa, Illinois.

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During the past decade, the advantages of Atlas Duraplastic air-entraining cement for paving concrete have been increasingly applied to structural and mass concrete—for foundations, walls, columns and floors; for slip-form work, gunite, stucco and other uses.

Particularly, has the increased plasticity of Duraplastic concrete been of benefit in structural work. For example, on this elevator mill and warehouse, the contractor reported, "Use of Duraplastic saved about 12 man-hours of labor per day while running concrete walls. First job on which we have used Duraplastic, and were more than satisfied with the results. Will use it in the future."

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ENGINEERING NEWS-RECORD

MARCH 2, 1950 VOL. 144 NO. 9

Senate Central Arizona vote improves project's chances

House committee under pressure to report $700 million measure—Supreme Court water-rights suit possible this year if the measure is approved by the House

A thumping 2-to-1 Senate vote last week for the Central Arizona project bill puts pressure on the House Public Lands Committee.

Should the bill pass the House, 1950 would see a Supreme Court suit to test California-Arizona claims to Colorado River water.

Chairman Joseph C. O'Mahoney, of the Senate Interior Committee, added an amendment to the original Central Arizona bill last year to allow the United States to be joined in such a suit. He proposed the addition to settle the long-standing controversy. It was this amended bill the Senate passed last week.

Without such an issue as authorization of the Central Arizona scheme provides, the Supreme Court would throw out the case as one that involves no damages to California. Senator O'Mahoney stressed this point last week.

• **California dissatisfied** – California was completely dissatisfied with the O'Mahoney compromise, even though it has been clamoring for court adjudication of the water rights. Proponents pointed out that no Congress would appropriate while the water fight was still undecided.

Until Arizona rolled up the whopping Senate majority, California congressmen on the House Public Lands Committee had expressed confidence that they could keep the bill bottled up.

California congressmens' confidence has dwindled now, but it still is great. Counting committed votes on the 28-member committee had shown a small majority for California. The Senate's action will not affect them, Californians claim. Senate decisions, they say, frequently have been reversed in the House.

Rep. J. Hardin Peterson, of Florida, Public Lands chairman, expects his group to take up the bill by March 4. Last year, the committee held a couple of months of hearings on a companion bill without the O'Mahoney amendment. But it did not report.

• **Election involved**–Even if the bill should reach the House floor, Californians assert it would fail of passage–largely because no congressman would want to face his constituents this election year and attempt to justify a vote for what they say is a $1.25-billion project. The Reclamation Bureau has a more modest estimate of $708 million for all presently contemplated features of the project–revised downward to this figure by eliminating one item, Bluff Dam, from the previous list totaling $738 million based on 1947 prices. Even with the smaller estimate, California stalwarts figure the Senate vote represented horse-trading quite apart from the merits.

Actually, the first unit for which Congress would be asked to appropriate–presumably after Supreme Court decision–would be Bridge Canyon Dam. This dam, upstream from Lake Mead, is estimated to cost $265 million. Both California and Arizona want to build the power portion of the project, estimated to produce 4.5 billion kwh yearly.

• **Irrigation at stake**–It is the irrigation features of the project that raise California's blood pressure. The bill that has passed the Senate would allow one-third of Bridge Canyon's power to be used to lift 1,200,000 acre-ft of water a year out of Lake Havasu, 200 miles downstream, and boost it nearly 1,000 ft for delivery through a 240-mi aqueduct to Central Arizona. California maintains that existing "law of the river" assigns most of this water to it and not to Arizona. That is the bone of contention which the Supreme Court would have to chew upon.

Two-way language in the bill offers a sop to critics who cry about power wastage for pumping. The measure authorizes a hypothetical future 80-mi tunnel and 120-mi canal system that could deliver water without pumping from Bridge Canyon reservoir to Arizona's irrigated area. It is this $550-million addition that enables Californians to label the project a $1.25-billion scheme.

• **New law needed**–Federal reclamation laws would have to be amended to make the project feasible. As the Bureau of Reclamation pointed out in its report on the Central Arizona proposal (ENR June 13, 1948, vol. p.

(*Continued on page 26*)

Larson explains sections of planning loan program

General Services Administrator Jess Larson has clarified two phases of the program for advance planning of local public works.

He explained that the three-year period for starting works begins after the final advance has been received by the local community on the federal planning loan.

Larson explained also that the provision authorizing hearings if a project has not been started within that period will be invoked only when GSA suspects insincerity on the city's part. He said he expects few such cases to arise, and emphasized that in such cases, he'd have investigated anyway. The law makes such loans repayable at once if the projects have not been started by the community within the stipulated time.

Cooperative housing ok'd by House, Senate groups

Cooperative housing legislation came out of House and Senate Banking Committees last week with minor changes which amounted to endorsement.

The Senate group, partially in line with FRB desires, made bonds of the proposed mortgage corporation government-insured instead of government-guaranteed. Senate sponsors could see small difference.

House changes, accepted by the Senate, increased the amount of a co-op borrower's participation in the mortgage corporation, and doubled the corporation's reserve requirement. The Senate halved the corporation's security authorization and it ok'd with minor changes a bill liberalizing Sec. 207 of the Housing Act, covering rental projects.

921), power revenues would have to be used to repay irrigation costs, interest charges would have to be relinquished, and the repayment period both for irrigation works and for power features would have to be extended to 75 years.

Not much change was made in the bill on the Senate floor. Arizona readily accepted an amendment stipulating that Bridge Canyon Dam should be built to a height "not more than" el 1,877—in place of the original language, which said "not less than"—to assure no backup of reservoir into scenic portions of the Grand Canyon. This change would not impair present plans to construct a dam 673 ft above streambed and 740 ft above bedrock to furnish water for 750,000-kw.

California and its allies would have six months to bring suit over water rights. No money could be appropriated for the project by Congress, the bill says, while any such suit is pending.

C. W. McGraw elected to head McGraw-Hill

James H. McGraw, Jr., president and chairman of the board of McGraw-Hill Publishing Co., Inc., announced his resignation Feb. 24 in order to be relieved of executive responsibility and to seek needed rest and relaxation. His brother, Curtis W. McGraw, who has been vice president, treasurer and vice chairman, has been elected chairman and president. He has been with the company since 1920.

As a part of the same shift in top management, Willard T. Chevalier, with the company since 1922, was appointed to the newly created post of executive vice-president. He will also head McGraw-Hill International Corp., which handles the international business and editorial activities. For the past five years, Chevalier has been executive assistant to James H. McGraw, Jr., and before that served in several editorial and business capacities. His first position was associate editor of ENGINEERING NEWS-RECORD, later becoming business manager, then publisher of both ENR and Construction Methods and Equipment.

Low bid on steel ramp

Corbetta Construction Co. submitted the low bid among five last week for the steel ramp connecting Lincoln Tunnel and the new bus terminal under construction by the Port of New York Authority.

Corbetta's bid was $1,221,700, 5% under the second bid, by Gull Construction Co., Inc. and 13% under the high bid from Cayuga Construction Corp.

Navy process makes roads on beaches

Navy researchers have developed a speedy and inexpensive method of converting quickly sandy beach strips into paved highways for amphibious landings. The Bureau of Yards and Docks worked out the process in cooperation with Hans F. Winterkorn, Princeton University.

Developed at the request of the Marine Corps to reduce loss of life in any future landings on enemy beaches, the method is a chemical process that hardens beach sand within two to three hours.

• **Two hours—one jeep**—Tests have demonstrated that sand hardened by the process can support the weight of a slow-moving jeep within two hours and a seven-ton truck in three hours. After 24 hours, a truck with a gross load of 13¼ tons made repeated runs without affecting the surface.

Materials used in the process are plentiful and cost less than 16 cents a pound. Presumably the chemicals are silicate of soda (water glass) and calcium chloride. Chemical Soil Solidification Co., of Chicago, has for about 10 years successfully applied in this country the Joosten process of a Dutch mining engineer for underground work.

In the Joosten process (ENR Aug. 14, 1941, vol. p. 222), the first chemical injected into the soil consists mainly of a commercial brand of silicate of soda to which have been added small amounts of certain metallic salts to retard the rapid gel-forming reaction which occurs when it is brought in contact with gases or with the second chemical, a solution of strong calcium chloride.

• **Reaction controlled**—For beach solidification, of course, a controlled rapid reaction is desired. Retardants accordingly are used only as needed to control the rate of hardening.

Beach stabilization by the new method is a mixing and densification process performed in a single run over the sand with ordinary road-building equipment. The operation can be completed at a forward speed of 12 ft a second, with the width depending on the capacity of the road equipment.

Chemically, the process involves the low-temperature condensation and polymerization of two liquids through the introduction of a catalytic agent.

Because the rate of hardening can be controlled by the catalyst, the demonstrated hardening times could be reduced by using a different catalyst. The material used, however, was chosen because it was the most effective that could be used with available, ordinary roadbuilding equipment. Work is proceeding on the design of equipment which will permit faster stabilization.

For the experimental development project, the Bureau of Yards and Docks set up this objective for Dr. Winterkorn: To achieve beach stabilization in minimum time, at minimum cost, with minimum equipment and personnel, and with materials which would not be in critically short supply during wartime.

• **Wartime process**—Dr. Winterkorn began work in 1946, using as a basis a process he had investigated during the war for the Civil Aeronautics Authority for use on landing fields, but which had not been reduced to practice. Scientific and laboratory work was carried on under his supervision at Princeton and in his private laboratory. Development work was done at the Naval Advanced Base Proving Ground, Port Hueneme, Cal.

First tests at the Naval Proving Ground were made in January, 1947, and subsequent tests have been conducted there. Tests are continuing with various types of sand so that the process may be applied on all kinds of beaches.

• **Army makes similar studies**—Somewhat similar studies have been made for the Army at Massachusetts Institute of Technology under the direction of Prof. John B. Wilbur, head of the department of civil engineering. The latter studies were sponsored by the Engineer Research and Development Laboratories at Fort Belvoir, Va., which in a recent announcement said that a muddy field can be turned into a stable landing field in less than five hours. The soil is not solidified, as is the sand in the Navy studies, but is given a rubber-like consistency that can withstand heavy impact loads.

In the MIT stabilization process, soil is treated with calcium acrylate, an organic compound, which is absorbed by the soil particles. Two other compounds are used subsequently—sodium thiosulfate and ammonium persulfate, which cause treated soil particles to lock together. In recent tests, a three-inch thick layer of treated soil supported a car without noticeable indentation within 24 hours after treatment. A 16-lb steel ball dropped on the test section from a height of 7 ft rebounded about 6 in without causing any damage. If the soil is allowed to dry in air for a week, tensile strengths of 500 lb per square inch are obtained but with some loss of elasticity.

Many methods for improving concrete presented at Chicago meeting of ACI

Papers discuss improvements in field control of concrete materials and better inspection, as well as improved design

Improvements in field control of concrete materials and inspection, better building design, improvement of its building code, concrete admixtures, precasting and prestressing were principal topics of discussion last week at the American Concrete Institute's 46th annual convention at Chicago.

Two new design specifications—covering two-way slab design and bond stresses—were proposed for the ACI Building Code. C. P. Siess and N. M. Newmark, both of the University of Illinois, recommend the adoption of a more rational design analysis for two-way reinforced concrete slabs, which will reduce the magnitude of moment coefficients from those commonly used.

Higher bond stresses for the new-style deformed bars, recommended for adoption in the ACI Building Code by R. C. Reese, consulting engineer, Toledo, Ohio, were essentially the same as those suggested at last year's meeting in New York City (ENR March 3, 1949, p. 31).

• **Building costs**—For large buildings of the airplane-hangar type, construction costs will be nearly equal regardless of whether they are built of timber, steel or concrete, but the annual cost of any such project may be greatly modified by its length of life, maintenance costs, repairs, operation and insurance.

These points were brought out in a paper by C. S. Whitney, New York City, on the cost of long-span, concrete-arched roofs.

In designing the proposed 400x200-ft athletic building for the University of Wisconsin, Whitney's firm made cost comparisons on five separate designs. Excluding contractor's profit, and overhead, the estimated cost per sq ft of the five designs were: arched timber trusses, $2.92; rolled steel beam arches, $2.94; laminated timber arches, $3.04; reinforced concrete arched shell, $3.14; bowstring timber arches, $3.20; and arched steel trusses, $3.32. All factors considered, Whitney concluded, the reinforced concrete arched shell is most suitable for this building.

• **Precast concrete expanding**—Precast concrete construction of buildings, bridges, trestles and marine structures is expanding rapidly and, with practical safeguards, will fill a major role in construction of the future. This was the conclusion of a paper prepared by C. D. Wailes, Jr., of Los Angeles, and presented by Prof. Frank Kerekes, of Iowa State College.

Improving concrete by using admixtures occupied five highly technical reports. These discussed use of admixtures to: increase resistance of the concrete to freezing and thawing; correct grading deficiencies; counteract alkali-aggregate reactions; damp-proof concrete; and, as an aid in making small concrete products.

Increased truck weights have increased sharply the problem of providing satisfactory load-transfer devices in concrete pavement, declared E. A. Finney, Lansing, Mich. We still need better load-transfer devices, he said, and there is a trend by state highway departments to get better jointing of concrete pavement regardless of costs. Also, there is a trend toward larger dowel bars—even up to 1¼-in. diameter at 12-in. spacing.

• **Four merit awards**—The Alfred E. Lindau award for outstanding contributions to reinforced concrete design was given to Prof. Frank E. Richart, University of Illinois. The Leonard C. Wason medal for the most meritorious paper of the year, "Rational Analysis and Design of Two-Way Concrete Slabs," went to C. P. Siess and N. M. Newmark, both of the University of Illinois. The Wason medal for noteworthy research, on alkali-aggregate reactivity, was presented to a three-man team of T. M. Kelly, of Portland, Ore.; L. Schuman, of Washington, D. C.; and F. B. Hornibrook, of Oakland, Cal. ACI's construction practice award went to S. O. Asplund, of Orbo, Sweden, for his paper describing methods of strengthening bridge slabs with grouted reinforcement.

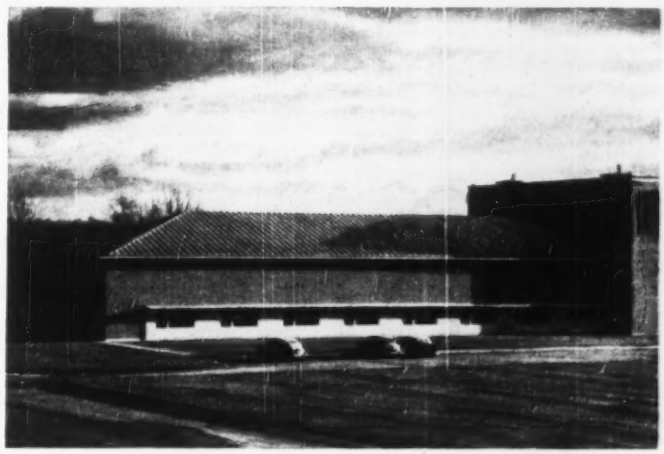
Frank H. Jackson, principal engineer of tests, Bureau of Public Roads, is the new president, succeeding Prof. Herbert J. Gilkey, of Iowa State College. A. T. Goldbeck, Washington, D. C., was elected vice-president.

New directors are: A. E. Cummins and C. S. Whitney, both of New York City, and I. L. Tyler and C. F. Wuerpel, both of Chicago. Harvey Whipple is secretary-treasurer, and Fred Van Atta, his assistant.

N. J. Turnpike Authority schedules contracts

The New Jersey Turnpike Authority plans to let a total of 45 to 68 separate contracts, most of them during 1950.

Construction will begin on superstructures of bridges, paving and completion of interchanges by fall of 1950. All contracts for grading and drainage work and minor structures will have been awarded by the end of this month.



ENGINE ROOM—Ford Motor Co. has opened this engine development laboratory at Dearborn, Mich. It's the first of eight major laboratory buildings to be erected on a 500-acre site. This is the first wing, the second, which will add 23 test rooms, will be started next month. Vorhees, Walker, Foley & Smith, New York architects and engineers, designed the structure. Overall size of the completed, cross-shaped building will be 450 x 430 ft. The exterior has a granite base with red brick and limestone trim. Structure is of reinforced concrete and steel framing. Roof is of metal.

Seek federal study of stream pollution

Stream pollution abatement is a topic for the President's Water Resources Policy Commission to consider when it recommends any integrated U. S. water use policy.

This was the demand of Prof. J. C. Velz, of the University of Michigan's department of public health statistics, as he addressed the annual meeting of the National Council for Stream Improvement at New York City.

Velz asserted that stream pollution abatement is so closely allied with water use and control that it is a fit topic for the new commission (ENR Jan. 18, p. 27). And he urged state regulatory bodies, cities and industries to make themselves heard in this scramble for water rights because they have a proprietary interest in how water is put to work—particularly in pollution abatement. This is true, he added, since:

1. When river regulation is feasible, streams can be maintained at levels that will prevent drought and dry-weather flows giving rise to offensive pollution. Extra cost of projects to permit release of water for sufficient dilution of waste during low flows, Velz said, would be more than balanced by the benefits.

2. River improvements can affect self-purification characteristics adversely. These characteristics should be investigated thoroughly when such projects are being considered. River-regulating works can easily be designed and operated so that stream quality will not be impaired during low flow.

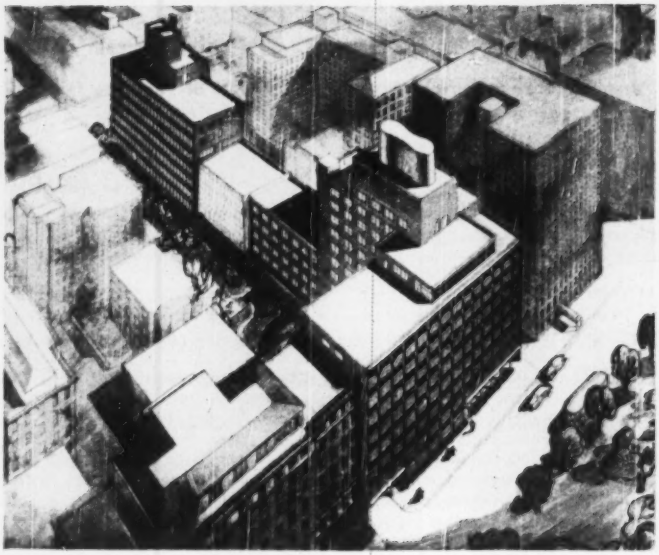
Pollution abatement, it should be noted, is being investigated in connection with river regulation in a few cases. The Ohio River Valley Water Sanitation Commission has passed a resolution asking that the federal government defray the cost of facilities for low-flow regulation on the Mahoning River. This is part of the Mahoning-Grand River floodway project in Ohio.

The Ohio commission has also been called in to consult with federal engineers about the effects that proposed high-lift dams on the Ohio River might have on pollution conditions. The dams under consideration are at Greenup, Ky. and Fernbank near Cincinnati.

New CAA publication covers western soils

A supplemental soil study, "Airphoto Patterns of Soils of Western United States," for location and design engineers, has been published by the Civil Aeronautics Administration Technical Development and Evaluation Center.

On sale at the Government Printing Office, Washington 25, D. C., for $1.25, the new TD Report (No. 85) supplements the original CAA work, "The Origin, Distribution and Airphoto Identification of United States Soils." Like the earlier publication (TD Report No. 52), the new booklet is extensively illustrated.



WELDED HOSPITAL—Three additions to New York City's Mt. Sinai hospital will have welded steel frames, the largest such use of the technique in the city's history. Welding was chosen to spare patients in the existing hospital, lower left, as much construction noise as possible. From upper left to lower right, the new buildings are a general research laboratory, the Berg Institute for Research and a maternity annex, the latter connected to the existing building across a former city street.

Big welding contract awarded for hospital

Largest use of structural welding in New York City history scheduled for three Mt. Sinai buildings

Work on the largest structural steel welding job in New York City's history will begin in May when steel erection starts on three additional units of the Mt. Sinai Hospital. Alfred Rheinstein, chairman of the hospital building committee, announced last week. The contract involves 2,700 tons of structural steel. Excavation has been completed and foundations laid.

The $7,000,000 additions—a 150-bed maternity wing and two research laboratories—will be 8, 9 and 10 stories high. They'll be designed to harmonize architecturally with the existing building they adjoin. Mt. Sinai is the third largest privately operated hospital in the city.

The new buildings were enabled to be connected directly to the old by the purchase of 99th St. between Fifth and Madison Ave. from the city. The present building is on Fifth Avenue. A basement will contain a centralized kitchen whence 3,000 patients will be fed; will have facilities for off-street loading from Madison Avenue and a system of communications between buildings.

Exteriors of the three new buildings will be of brick with marble facing on exterior columns, according to Kahn and Jacobs, architects. Other design features include heating pipes encased in mullions, light steel exterior columns on close spacing, and double-hung aluminum window frames.

Use of welding will spare patients in the existing building of much of the noise of construction. The welding plans call for story-high trusses with butt-welded joints instead of the customary gusset-plate connections. These trusses, which weigh 50 tons, are designed to carry nine stories of the laboratory building across a 53-ft span over a basement delivery area.

Ingalls Iron Works Co. is fabricating and erecting the framework. Gilbert D. Fish is acting as consultant on welding. Fred N. Severud is the structural engineer. York and Sawyer are consulting architects.

Pennsylvania cities face treatment orders

Sanitary Water Board to direct 57 municipalities on Susquehanna and Juniata to build plants

Pennsylvania's clean streams program became a matter for municipal action in two more river valleys last week.

The Sanitary Water Board announced it would issue orders to 57 municipalities and one state institution along the Susquehanna and Juniata Rivers requiring that they build or augment sewage treatment works and that the improvements be in operation by June 1, 1952.

• **From Maryland north**—Affected communities are on the Susquehanna between the Maryland line and Sunbury; its west branch from Sunbury to Lock Haven; its north branch from Sunbury to the mouth of the Lackawanna River; and everywhere along the Juniata, the latter a tributary of the Susquehanna. Cities along the latter stream will be required to have their plants operating a month earlier than the Susquehanna deadline of June 1, 1952.

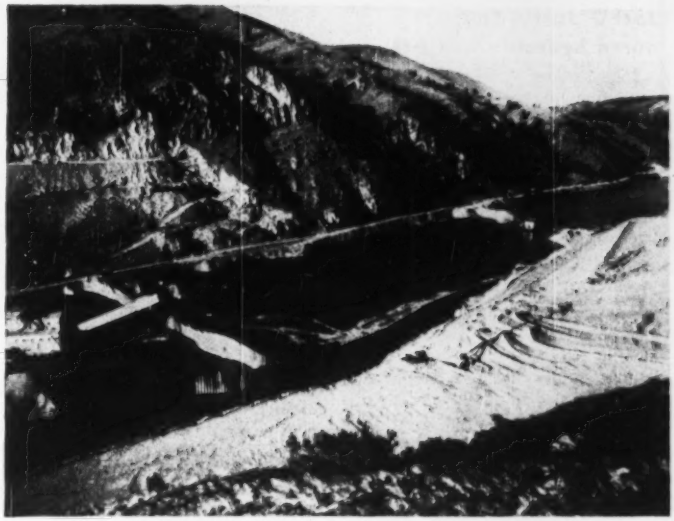
When these orders have been issued, about 45 percent of all Pennsylvania municipalities subject to the law will be under order to provide treatment facilities by specified dates. The law does not apply to unsewered localities. Similar orders have been issued to Altoona, at the Juniata's headwaters, to all cities in the Schuylkill River basin and sections of the Delaware River basin which have received permits approving sewage works plans.

The Susquehanna and Juniata orders will be the most extensive single act yet taken under the clean streams law aimed at municipalities. The law is one part of a broad anti-stream pollution campaign Pennsylvania has been pushing vigorously for four years.

• **Industries included**—Industries on the Susquehanna and Juniata watersheds are being ordered to build and operate treatment plants also. They get one year from the date of order.

Major cities which will be ordered to build sewage treatment facilities include Harrisburg, Steelton, Sunbury, Kingston, Wilkes-Barre, Williamsport, Pittston and Lock Haven. Altoona will build two plants to replace existing treatment works which are inadequate.

Seven smaller communities won't receive orders as promptly as the larger cities, since their works will take less time to complete than those ordered to be built by the larger cities.



RECLAMATION STARTS ANOTHER—Canyon Ferry Dam site, near Helena, Mont., was excavated by dredge between upstream and downstream cofferdams. Here the dredge is shown (left) outside the upstream cofferdam placing fill against its sheetpile core. At the near bank, the Missouri River is diverted through a steel-framed, timber-lined rectangular flume 65 ft wide. Canyon Constructors, of Los Angeles, is doing the job. (Reclamation Bureau Photo.)

Dual disposal adopted by Indiana city

Jasper, Ind., is betting that New York and Philadelphia, along with a number of other cities, are wrong.

At least, that's what the mayor of the town of 6,800 people contends. Mayor Herbert E. Thyen says his city is doing something "which a majority of cities will be doing in 10 or 15 years"—disposing of garbage into the sewers by individual garbage grinders.

In New York and Philadelphia—and elsewhere—garbage disposal by this method is prohibited. It adds too much new solid matter to existing sewer-plant capacity.

• **Otherwise how?**—With Jasper, it's a problem of how to dispose of garbage otherwise. The city has had increasing trouble getting private contractors to bid on contracts for garbage collection and disposal. And the $13,000 annual bill for wages and equipment maintenance which Thyen says Jasper will save by abolishing municipal garbage collection, was a factor, too. Foremost, though, in Jasper's decision to junk garbage collection was public health.

To enable the city's discontinuance of garbage collection next Aug. 1, Jasper accepted a bid of $74.17 per unit, by the General Electric Co., for installation of garbage grinders in Jasper homes. About 730 residents, more than half, signed up to buy units from the city. Others can sign until July 1. The price represents a real break for Jasperites. They'd have to pay about $125 for the same unit at retail, and installation charges would raise the bill even higher. Installation charges vary with the work required.

• **Lots of bids**—Installation and a year's guarantee is included in the $74.17 price offered by GE. That price resulted from some highly competitive bidding by grinder manufacturers for the Jasper business. According to GE officials, Jasper is the world's first city to substitute grinders for orthodox garbage collection. According to Electrical Merchandising, a McGraw-Hill publication, there were 505,000 grinders in use in the United States last Jan. 1, representing a saturation of about 1.4 percent of the wired homes.

Jasperites who don't want to use grinders don't have to. But they can't store garbage and they can't expect the city to handle it for them. The city will license anyone who wants to collect it, so long as the vehicles meet health requirements. Or garbage may be burned—again so long as health standards are met.

Installations will start April 1, by which time the city's new $300,000 sewage-disposal plant is to be ready, along with new sewers.

Joel D. Justin dies; noted hydraulics expert

Joel DeWitt Justin, Philadelphia consulting engineer and one of the nation's top authorities on dam design and related hydraulic matters, died Feb. 21, after only a short illness. A director of the American Society of Civil Engineers, Mr. Justin had attended the meeting of the board of direction in New York a month previous in seeming good health. He was 68 years old.

Mr. Justin entered on his hydraulic career shortly after graduation from Cornell in 1906 when he went to work for the New York Board of Water Supply, ending a five-year term of service as engineer in charge of construction of Olive Bridge Dam. For three years thereafter, he was resident engineer on dams and water supplies for Harrisburg, Pa. Becoming associated with the Fargo Engineering Co., of Jackson, Mich., he was construction engineer on the Wisota hydro project and on the Yadkin Falls project of the Aluminum Company. Later he was chief engineer of hydro plants for Sudlin Engineers, Inc., Winston-Salem, N. C., and in 1923 became hydraulic engineer for The Power Corporation of New York.

As a consulting engineer, Mr. Justin was associated with the design or construction of some 120 dams. He acted as a dam consultant for the Formosan government, and carried out many assignments for the Corps of Engineers, one of the latest being as a member of the board of review on the Panama Canal studies. Mr. Justin was the author of numerous books in the hydraulic field. With William P. Creager and Julian Hinds he wrote a three-volume work "Engineering for Dams," which is, following a recent revision, the most up-to-date text on the subject. One of Mr. Justin's sons, Joel B. Justin, is a hydraulic engineer with the Appalachian Electric Co.

YAKIMA FINISHES THE JOB—Started early in the 1930's, this 13-story hotel in Yakima, Wash., is to be completed at last. It's finished with fluted aluminum sheets and its first floor occupied by stores. Funds have been raised locally to complete it, at a total cost of $1,700,000. Thomas F. Hargis, Jr., of Yakima, is architect.

Oregon engineer keynotes California road session

Highway engineers must consider future needs in planning highway systems, R. H. Baldock, Oregon highway engineer, said in a talk at the California institute on street and highway problems. Baldock, in his talk, said traffic speed is the fundamental control in geometric design of highways in Oregon. Factors affected by speed are centrifugal force on curves, sight distances (horizontal and vertical) for stopping, sight distance for safe passing, character and volume of traffic, and construction cost. Oregon engineers use seventy miles per hour in level and rolling country for Class I highways and feel that this should take care of all future highway needs in Oregon.

The institute was sponsored by the University of California Institute of Transportation and Traffic Engineering. It was the second such session and drew 344 engineers and officials from state, county and city road departments.

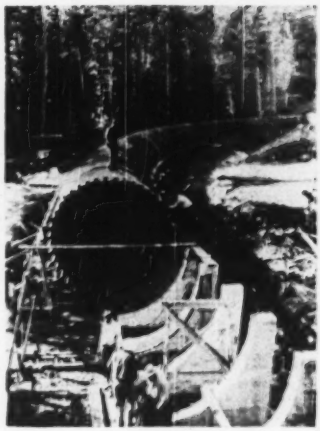
Baldock pointed out that recent bills introduced in Congress to set up a federal-aid tertiary system of highways aim at providing an all-year road to every farm. This scheme "cannot be based upon economics; it must be based upon politics," he added.

In discussing truck revenue, Baldock concluded that a weight-mile tax is the only equitable means of distributing cost among highway users. He recommended that the rate per mile increase with the size and weight of the vehicle.

• **Municipal problems**—Much attention was given to municipal problems. Street improvements in Santa Rosa, Cal., are financed by a city sales tax, according to F. W. Blom, Santa Rosa city manager. An effective campaign to secure needed improvements resulted in the levying of a 1% sales tax in this town of 18,000 people. Each year, the first $50,000 revenue from this tax is placed in the general fund and the balance—which has amounted to $190,000—goes for street and parking improvements.

A master plan is necessary for logical development of off-street parking facilities, M. H. Irvine, city engineer, Riverside, Cal., declared. Such a plan can best be drawn by an outside consultant not subject to local influences, he said.

Ralph A. Moyer, research engineer, Institute of Transportation and Traffic Engineering, described a rating method for priorities on resurfacing secondary streets in Berkeley, Cal. A surface deficiency index is developed based on results of tests by a Bureau of Public Roads road roughness indicator and traffic volume. This results in a priority for resurfacing that is easily explainable to taxpayers.



MOSTLY CURVES—This wood stave pipeline serves the Toketee power plant of the California Oregon Power Co., between Medford and Yamsey, Ore. Built and installed by Santa Fe Tank and Tower Co., Los Angeles, it was designed by the utility and Pioneer Service & Engineering Co., Chicago. It's 1,700 ft long with an inside diameter of 12 ft. All but 370 ft is built on curves, much of it a double curve. It's designed to operate under 45- and 50-ft heads.

Ok airport improvements

St. Louis' Board of Aldermen has appropriated $500,000 to carry out a proposed five-point program aimed at increasing safety and efficiency of the Lambert-St. Louis Municipal Airport. Overall cost of $800,000 to $1,000,000 will be shared by the CAA. High-intensity lighting will be installed, the tower relocated, strips replaced, a shelter erected and lines moved.

CONSTRUCTION BUSINESS

Lumber prices soar in western cities

Lumber prices are soaring in western cities this month, especially Douglas fir, which jumped as much as $14 a M in some areas; yellow pine is up $5 in spots.

Reason for the hike is primarily the curtailment of production in the snowbound Northwest. Cities like Los Angeles and Denver, wholly dependent on western production, are feeling the pinch most. In the South, heart of yellow pine production, lumber prices are steady. But farther away, in the Middle West, strong fir increases are pacing lesser rises in pine; the same is true in the Northeast, though to a smaller extent.

In the Middle West, fir is now quoted between $88 and $92 a M depending on local conditions. Chicago, Cincinnati and Detroit have had fir increases of $1-$5 and yellow pine none to $4. In Cleveland fir is up $14 a M to $72; for periods of several days at a time no shipments came in from the West.

Further west the situation is even tighter, with fir up $14 a M in Denver and Los Angeles, where there is no competition from southern pine. In Kansas City, yellow pine leaped $21 a M to $105-$117 during February, while fir edged up $3 a M to $93. Seattle prices are steady as stocks are adequate and demand low.

In the southern states, where pine is king, few increases have occurred. In fact, Baltimore took a $1.50 drop in Douglas fir to $74.50 a M; pine is priced at only $60 a M in most southern cities.

The Northeast has experienced relatively small increases in lumber prices in some cities. Pine in New York City is up $5 a M to $87.50-$92.50 and fir up $2.50 a M to $95-$100. Pine is up $2.50 in Pittsburgh to $75-$85 a M.

Fir is certain to come back down after mills get back in full production, western suppliers think. But how long that will take no one knows. After the snow clears, the logging roads will be clogged with mud.

Suppliers in regions using both fir and pine say the drop in fir production is not the sole cause of increased lumber prices generally. They also attribute the rise in pine prices to the increase in minimum wages of lumbermen to 75 cents an hour; the smaller, marginal mills in the South are unable to pay these wages and meet competition so they are holding back production, at least until they are sure conditions warrant resuming output.

Lumber shipments from 417 mills reporting to the National Lumber Manufacturers Association were 16.5% above production for the week ending February 11, compared with 39.7% above in the previous week.

New orders were 40.0% above production. Unfilled orders amount to 54% of current stocks.

Unfilled orders for softwoods are equivalent to 27 days' production at the current rate; gross stocks amount to 48 days' production.

For the year to date, lumber shipments have exceeded production by 20.4%. Orders have been 49.2% above production.

Douglas fir production jumped in the week ended February 11 to 42% ahead of the previous week, but was still 10% below a year ago. Shipments were 12% and new orders 11% above a year ago.

Current Lumber Prices
($ per M for No. 2 Common 2x4s)

	Douglas fir			Yellow pine		
	Current Price	Change since Jan. 1	Change since Feb. 1	Current price	Change since Jan. 1	Change since Feb. 1
Midwest & Plains						
Chicago	$88-89	+$5	+$5	$74-76	+$2	+$2
Cincinnati	88	+ 5	+ 5	80	0	0
Cleveland	72	+14	+15	72	+ 5½	+ 5½
Denver	100	+14	+14	..	..	..
Detroit	86	+ 1	+ 6	69	+ 4	+ 3
Kansas City	93	+ 3	+ 3	105-117	+21	+21
Minneapolis	100	0	0	..	..	..
St. Louis	102½-104½	+ 1	+ 1	88½	+ 3½	+ 3½
Northeast						
Boston	93-95	0	0	91	0	0
New York	95-100	+ 2½	+ 2½	87½-92½	+ 5	+ 5
Philadelphia	105-115	0	0	85-87	0	0
Pittsburgh	90-100	0	0	75-85	+ 2½	+ 2½
South						
Atlanta	..	..	..	60	0	0
Baltimore	74½	— 1½	— 1½	60	0	0
Birmingham	73	0	0	65	0	0
Dallas	..	..	..	60	0	0
Pacific Coast						
Los Angeles	85	+14	+14	..	..	..
San Francisco	67	0	0	..	..	..
Seattle	62½	0	0	..	..	..

PARTNERSHIPS SIMPLER

Partnership settlements after the death of a partner are simpler as a result of a recent U. S. Tax Court decision. The ruling ended double taxation liabilities under certain conditions.

It's possible for partnerships to buy insurance on the life of each partner, the survivor to be beneficiary. On death, the beneficiary exchanges the proceeds for the estate's interest in the business. Heretofore, the Internal Revenue Bureau has sought to tax both the estate's interest and the proceeds of the insurance. The Tax Court ended this.

Bricklayers pace labor's February gains

Bricklayers in San Francisco got the biggest increases of the month on the labor front—an 18¾ cents an hour rise to $3 an hour for a six-hour day, compared with a previous $2.81¼ for eight hours.

This will probably cause other construction workers in the area to bargain hard on new contracts up for renewal May 1. Plasterers now get $3.00 an hour rate for working an eight-hour day.

In Atlanta, common building labor got a five cent increase to 90 cents an hour. Kansas City electrical workers and steamfitters are both up 12½ cents an hour this month—electrical workers to $2.42½ and steamfitters to $2.50. This 12½ cent rise, which seems to be the general pattern in many cases this year, is likely to be the figure demanded by other trades in new contracts up for renewal this April.

Steam fitters in Pittsburgh have received a 30 cents an hour raise to $2.80.

In St. Louis, master electricians have obtained a 2% vacation fund. That in effect increases their pay five cents an hour to $2.50. Effective June 1, plasterers here will get 25 cents an hour more than the present rate of $2.50 an hour.

Other crafts are negotiating new contracts May 1.

In Baltimore cement finishers obtained 15 cents an hour more than the present $2.15 and painters got a 12½ cents an hour increase over the present $2.25, both agreements effective April 1 for one year.

Eighteen crafts in Cleveland have agreed to demands for an increase of 12½ cents an hour effective March 1, but the unions will not go along if bricklayers get the 42½-cent raise to $3 an hour and five-day week which they are asking.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 74, went to press.)

Street Improvements—City of Denver and Denver County, Colo., plan street improvements to cost about $33,000,000. Terry Owens is city engineer.

Roads—Dallas County, Dallas, Tex., plans improving county roads at about $11,000,000. Koch & Fowler, Dallas, are consulting engineers. E. Klinger is county engineer.

Hospital—Henry Ford Hospital, Detroit, plans hospital addition in Detroit to cost about $12,000,000. Voorhees, Walker, Foley & Smith, New York, are architects.

Airport — Department of Public Works, Philadelphia, has postponed bids to March 15 for terminal building at International Airport, Philadelphia, Pa. Estimated cost is $4,000,000. Carroll, Grisdale & Van Alen, Philadelphia, are architects. Airway Engineering Consultants, Inc., Washington, D. C., is engineer.

Electrical Distribution System—Columbus & Southern Electric Co., Columbus, O., plans distribution and transmission lines in Ohio to cost $4,575,000.

Residential Development—Gordy & Son, Inc., New Castle, Del., will construct residential development by separate contracts, to cost estimated $3,700,000.

Hotel—American Pacific Industrial Corp. of Venezuela, subsidiary of American Pacific Industrial Corp., New York, has been awarded contract to construct hotel in Caracas, Venezuela, for the Tamanaco Hotel Corp., Venezuela. Estimated cost is $6,000,000. Holabird, Root & Burgee, New York, are architects in association with Gustavo Guinand, Caracas.

Apartment—Corporation c/o Albert S. Shaw, Darby, Pa., plans apartment and shopping center in Upper Darby, Pa., to cost $13,000,000. Karl F. Otto, Rosemont, Pa., is architect.

Dwellings—Syndicate, c/o J. C. Cragg, Toronto, Ont., plans dwellings and apartments in Scarborough, Ont., to cost $10,000,000 to $12,000,000.

Vinegar Building—George A. Fuller Co., New York, has been awarded contract for vinegar building, loading platforms, grain elevator, alcohol storage tank by the H. J. Heinz Co., Pittsburgh, at about $1,500,000. Jaros, Baum & Bolles, New York, are architects for the job.

Housing—Canterbury Gardens, Inc., Birmingham, Ala., plans housing at University City, Mo., to cost $9,000,000. Gay G. Weinel, St. Louis, is architect.

Apartments—Parkway Homes, Inc., Philadelphia, awarded contract to E. J. Frankel, Philadelphia, for $4,000,000 apartment in Philadelphia. Roth & Fleisher, Philadelphia are architects.

Residences—Seven Hills Homestead Association, Cincinnati, is taking bids for constructing 600 residences at Mount Healthy, Cincinnati, to cost about $4,000,000. Findley C. Brooke, Cincinnati, is architect.

Office Building—Department of Labor & Industry, Harrisburg, Pa., plans office building for Unemployment Compensation Bureau, at Harrisburg, to cost about $4,000,000.

Bridge—Harmon Construction Co., Oklahoma City, Okla., was low at $1,311,341 when the YMCA, Oklahoma City, opened bids for clubhouse in Oklahoma City. Sorey, Hill & Sorey, Oklahoma City, are architects.

Hospital—Temple University Hospital, Philadelphia, plans two hospital buildings to cost $6,000,000. James A. Nolan, Jr., Philadelphia, is architect for the job.

Power Plant—Lakeside Bridge & Steel Co., Milwaukee, has been awarded contract for structural steel for power house at Sheboygan, Wis., by the Wisconsin Power & Light Co., Sheboygan. The total cost of project is $7,000,000.

Pulp Mill — Kimberly-Clark Corp., Toronto, Ont., plans constructing pulp mill at Kapuskasing, Ont. Estimated cost is $3,000,000.

High School—City High School District, San Bernardino, Calif., will hold bond election for $3,850,000 on March 21, for constructing high school and other facilities.

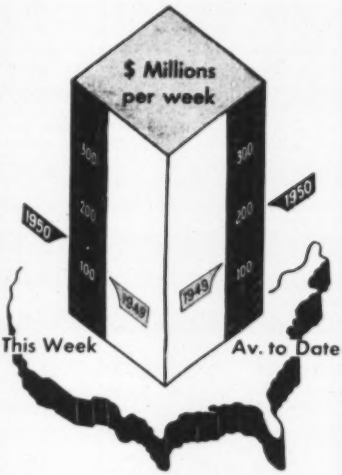
Bridge—City of Chicago will open bids March 20 for substructure bridge over South Branch, Chicago River, to cost about $2,000,000.

Power Plant—University of Illinois, Urbana, Ill., will take bids March 8 for power plant on campus to cost $2,000,000. Sargent & Lundy, Chicago, are engineers.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Mar. '50	488.35	234.75
Building Cost	Mar. '50	359.98	194.59
Volume	Feb. '50	305	134



Activity This Week

As reported to ENR
(in millions of dollars)

Amount of contracts let

	Week of Mar. 2 1950	Cumulative 1950 (9 wks.)	Cumulative 1949 (9 wks.)	% chge
Federal	$7.4	$346.7	$167.3	+107
State & Mun.	38.5	460.8	408.7	+13
Total Public	$45.9	$807.5	$576.0	+40
Total Private	87.6	927.6	671.5	+38
U. S. Total	$133.5	$1,735.1	$1,247.5	+39

Contracts by type of work

	This Week	Cumulative 1950 (9 wks.)	Cumulative 1949 (9 wks.)	% chge
Waterworks	$1.9	$62.1	$21.4	+144
Sewerage	3.9	38.8	33.6	+15
Bridges	2.0	43.4	65.1	−33
Highways	12.8	135.6	82.7	+64
Earthwork, Waterways	4.8	53.6	65.2	−18
Buildings, Public	14.0	415.1	268.3	+55
Industrial	21.5	165.3	180.7	−8
Commercial	63.0	764.7	432.3	+63
Unclassified	9.4	126.7	98.1	+29

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 1950 (9 wks.)	Cumulative 1949 (9 wks.)	% chge
NON-FEDERAL	$837.0	$866.1	−3
Corporate Securities	396.8	417.6	−5
State and Municipal:			
Excl. Housing	280.2	352.9	−21
Housing	160.0	95.6	+68
Total Capital	$837.0	$866.1	−3

Utility seeded California clouds since '48, claims 12% bonus snowfall

California Electric Power Co. claims dry-ice seeding from P-38 kept Bishop Basin hydro plants going despite dry cycle

A California power company recently revealed it had been seeding clouds over watersheds feeding its five High Sierra hydro plants for two years—and claimed an increase in snowfall of 12 to 14%.

Beginning operations in January, 1948, California Electric Power Co. made 21 flights during seeding periods totaling 210 days. A total 6,500 acre-ft of "bonus runoff" is claimed for seeding in the 1948-49 winter period—equivalent to 14,300,000 kwh. This is enough to supply residential and industrial power to a city of 50,000 for three months. The company said to generate the same amount by steam would have cost $56,000.

The entire operation was conducted in secrecy, mainly because there is yet no legal decision on whether seeding operations "steal" power resources from others. However, California Electric has built up meteorological and operational data which, it claims, prove almost beyond doubt that had the power-potential clouds not been tapped, they probably would have dissipated themselves over the mountains.

• **Seeding given credit**—Albert Cage, company president, believes that the aerial triggering was a prime reason for the company's ability to operate its Bishop Basin plants at full capacity despite a "dry cycle" which descended upon California several years ago.

The company began power operations in the Bishop basin in 1905 and so has a long snowfall and precipitation record by which to gage its seeding results. Over this period the normal precipitation has been 15.5 in. In 1948, CalElectric engineers, taking into account California's dry weather cycle, estimated precipitation at 51.2% of normal. Actual precipitation was 14% more. In 1949, precipitation was predicted at 64.7% of normal; actual figures were 12% higher.

It cost the power company some $200 an operational hour to keep its P-38 seeding plane in the air. An average seeding run requires from 20 to 100 lb of finely chopped dry ice—just how fine depending upon the nature of the cloud bank. Clouds averaging 3,000 ft or under in thickness are seeded with dry ice the size of rice grains. Larger clouds require pieces ground to about thumb size.

• **Dry ice preferred**—Bishop, which lies at 4,100 ft, requires the plane to seed with dry ice rather than silver iodide—also used for seeding clouds—because clouds hang low over the valley. The low altitude flying necessary for silver iodide seeding would be unsafe.

Evaluation of snowfall and resulting precipitation is gaged by three Leopold and Stevens recorders, spotted in the collecting basin. These recorders graph the beginning and duration of a storm and calculate the amount of precipitation. In addition snow markers which can be "read" from a light plane are placed throughout the area.

The U. S. Weather Bureau, which is officially skeptical of seeding operations, doubts whether a two-year cloud triggering period can be called conclusive. However, one of its meterologists, Elvyn C. Pye, who runs the Bishop weather station, declares that "Personally, I am convinced that California Electric Power Co. has created snowfall here. The evidence seems positive."

Just what application CalElectric's experience may have for other utilities is not yet known. The conditions peculiar to Bishop—high ranges, moisture-laden clouds blown by winds from the Pacific and a cup-shaped collection basin—may be a limiting factor. However, the company's engineers believe that their experiments may be duplicated in other parts of the nation where utilities rely upon snow runoffs for power.

Stuart Cundiff, the company's engineer in charge of operations, directed the seeding campaign.

Lagooning suggested for Willamette waste

Oregon paper makers want to confer with state on possibility as move to meet anti-pollution deadline

Oregon paper manufacturers, faced with a deadline of Dec. 1, 1951, to cease pollution of the Willamette River, have expressed a willingness to co-operate with the state sanitary authority in investigating the possibility of lagooning waste sulphite liquor through the low water months of July, August, September and October, with release during high water.

Oregon State College engineers submitted to the authority estimates on the cost of installing storage facilities for the waste during low water months. They estimated that such installation for a 100-ton mill would cost $177,500 to be within a 6,000-cfs flow of the river and $182,000 to be within a 7,000-cfs flow. Average flow of the Williamette at Salem is less than 6,000 cfs only 114 days out of the year and less than 7,000 cfs only 126 days.

At a hearing before the sanitary authority, the manufacturers dismissed as too expensive and too unproved other proposed processes of burning the sulphite liquor, which is detrimental to fish life.

J. C. Compton, president of the Spaulding Pulp and Paper Co, Newberg, submitted figures showing estimates of increased costs his mill would suffer if forced to put in new processes for waste disposal. Lagooning, by far the cheapest, he estimated would increase cost $1.56 a ton. Increase in cost by other methods were listed as follows: evaporation and burning upon a lime base, $9.45; burning upon ammonia base, $13; burning upon a soda base, $10.80; magnesium process, $12.23; precipitation and filter, $5.37; heat hydrolysis, $7.37.

S. J. Robinson, vice president and general manager of Publishers Paper Co, Oregon City, said impoundment of waste sulphite liquor during low water periods offered a promising solution. All other proposals he branded as "deficient".

N. G. Teren, vice president of Oregon Pulp and Paper Co, Salem, said his company had acquired island property in the Willamette River for storage "possibilities." He added that he had doubted they would be allowed to handle the waste in that way.

In a prepared statement, F. N. Youngman, vice president of Crown Zellerbach Corp, pointed out economic infeasibility of known treatment processes for waste sulphite. He charged the sanitary authority with responsibility for finding a solution and told of his own company's zealous research.

The statement dismissed the process for producing yeast from the waste as far from a success. "Alcohol can be made from the sugars contained in the waste," Youngman wrote, "but this is only a partial solution to the problem. In view of this we do not consider the major expenditure involved could be justified."

All the paper mill representatives emphasized that waste sulphite is not deleterious to human beings, as is municipal sewage. Its effect is to reduce oxygen content in water, causing harm to aquatic life.

The sanitary authority took the case under advisement.

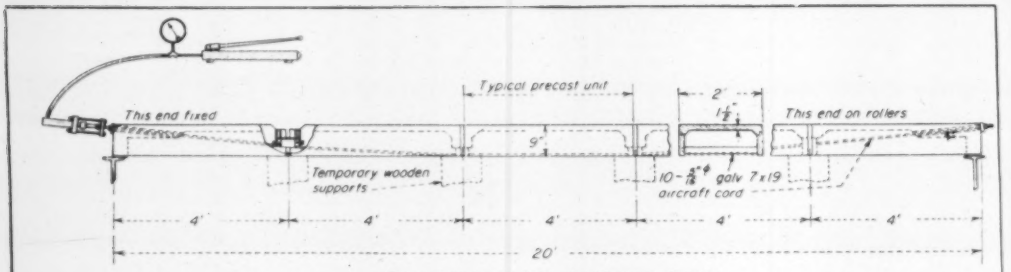


FIG 1-MODEL OF 200-FT. HIGHWAY BRIDGE

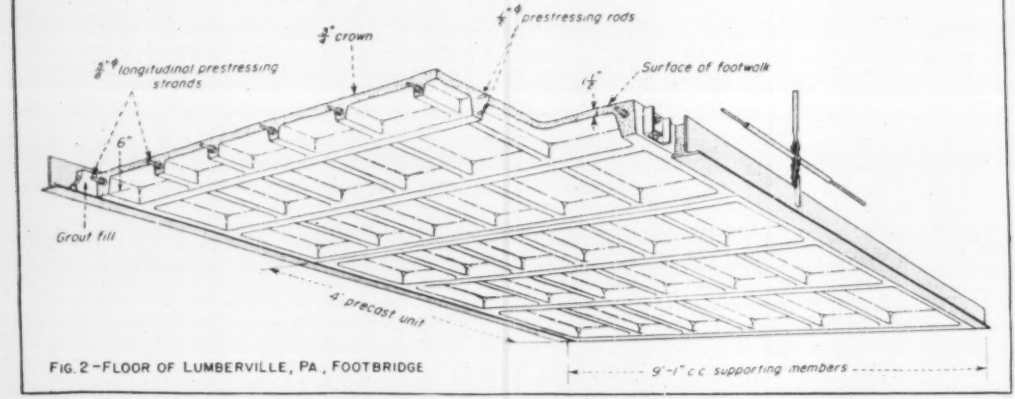


FIG. 2-FLOOR OF LUMBERVILLE, PA., FOOTBRIDGE

PRESTRESSING was studied on a model (Fig. 1); then a footbridge floor (Fig. 2) was prestressed by method thus developed.

Americanized Prestressed Concrete

C. C. Sunderland and H. Kent Preston
Chief Engineer and Project Engineer, Bridge Division
John A. Roebling's Sons Co., Trenton, N. J.

PRESTRESSED CONCRETE, American version, is now past the laboratory stage. Drawing on long experience with wire manufacture and suspension bridges, the John A. Roebling's Sons Co. has developed design and construction methods that will enable prestressed concrete to compete successfully with other materials in the U. S. Company engineers adopted galvanized bridge wire for the basic prestressing unit, evolved compact swaged terminals from those widely used in the aircraft industry, and combined these materials with precast concrete, hollow-box sections. The result is a prestressing technique better fitted to American practices than one based on European methods.

The principle of prestressing—which enables full advantage to be taken of the compressive strength of concrete and of the material on the tension side of a beam—has been exploited for many years in Europe (ENR April 5, 1945, vol. p. 455, and Sept. 1, 1949, p. 183). But our engineers realized that the methods used there would not necessarily be advantageous or economical in the U.S., in view of the relatively low wage rates in Europe and differences in availability of materials. Therefore, they initiated a research program in 1944 to develop more suitable methods.

Turning to American suspension-bridge practice to find a reliable, rugged and durable material for prestressing concrete, they found an answer in time-tested, galvanized bridge wire, which has a protective coating of zinc applied in the molten state.

Although hot galvanizing has been used in the U. S. for a long time, this has not generally been the case abroad. Inquiries from Europe for bridge strand do not call for galvanizing, but carefully specify that the strand should be packed with red lead as the wires are laid. Furthermore, it is well known that European prestressed-concrete practice has been built up around ungalvanized wire. Here was one point where a change from Continental practice was needed.

• **Prestressing simplified**—Our engineers also realized that prestressing of structures in which many wires are needed can be simplified by using strand or rope made with galvanized wires. There is no inelastic stretch in these, if normal U. S. practice of prestretching under a tension well above the working load is followed. This fact has the further advantage that the proportional limit of the wires can be raised, if desired, by preloading the strand or rope above the original proportional limit.

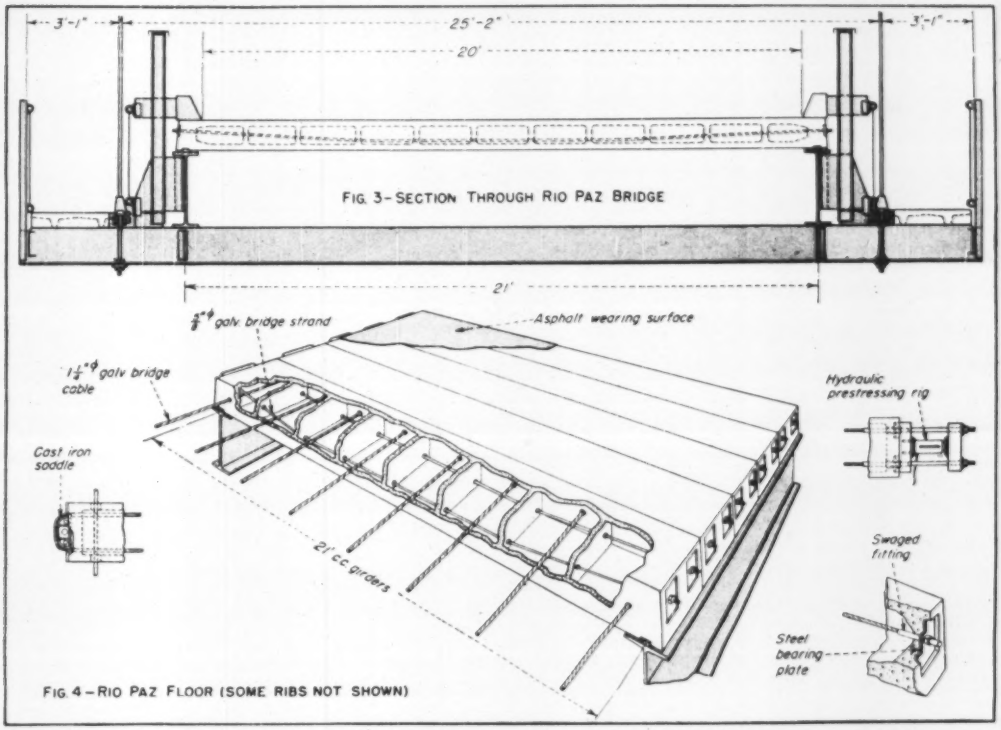


FIG. 3 – SECTION THROUGH RIO PAZ BRIDGE

FIG. 4 – RIO PAZ FLOOR (SOME RIBS NOT SHOWN)

LATEST APPLICATION of the new prestressing method was to a highway slab (Fig. 3 and 4) for a suspension bridge.

Emerges From the Laboratory

The next step was to find a compact end-connection capable of developing the full strength of cables. A slim, cylindrical swaged terminal, threaded in part to simplify prestressing and anchoring, was evolved (Fig. 4).

Then, to take the guesswork out of prestressed concrete, our researchers decided not to bond the steel to the concrete, but to anchor it externally instead. With this method, the tension could be checked at any time; assumptions of amounts of volume change of concrete or creep of steel could be verified.

Finally, a search for the most efficient cross section for the concrete—one that would also protect the prestressing element—led to the selection of a hollow box for the basic shape. The wisdom of this choice is illustrated in "Longer Concrete Girders? Use a Hollow Box," by Homer Hadley (ENR Sept. 1, 1949, p. 168), which describes a reinforced concrete bridge that spans 130 ft but has a depth of only 5 ft. If the structure had been prestressed, the advantages of the design would have been even more striking.

With a box section, some construction efficiency can be achieved by precasting a member in many sections. When assembled, with the prestressing elements tensioned against prepared saddles and anchor plates, a girder having high structural efficiency results. The prestressing elements are contained in a dead air space, which offers long-time protection against moisture and fresh oxygen, but as an added precaution, a protective coating can be applied to the steel. The result is a product of superior durability compared to most conventional structures.

• **Principles proved**—To check this technique, model structures, such as the one in Fig. 1, were built and tested. Many of these were described by L. Coff, consulting engineer to the Roebling Co., in a paper presented at the 33rd annual meeting of the American Association of State Highway Officials, Sept., 1947.

The structure in Fig. 1 is a one-tenth scale model of a 200-ft bridge designed to carry two lanes of H-20 traffic and two sidewalks. Although the bridge is a hollow-girder type of design, it was necessary to build the model with a channel cross section to provide walls of a practical thickness.

An exact duplicate of the bridge in unit stress, relative deflection and manufacturing procedure, the model was made of five precast sections. Each of these was 4 ft long and 2 ft wide and composed of 1½-in. thick ends and sides.

The sections were placed on temporary wooden supports with a 1½-in. gap between their ends, forms were inserted and a top slab poured. Also, the gaps between the ends of the sections were filled. After the concrete had cured, ten prestressing strands were installed and stressed to design load. This caused the beam to bow up,

thereby removing all load from the temporary wooden supports, which were then easily dismantled.

Tests were made to determine the deflection of the beam, change in tension of the prestressing strands, change in length of the beam, and unit strains near the top and bottom surfaces at various points. These proved conclusively that the stresses, strains and deflections in the beam were elastic up to the point at which the concrete in the bottom surface went into tension. Even after the beam had been subjected to a load equal to four times the design live load, which produced several barely visible cracks near the center of the span, it made a full elastic recovery when the live load was removed.

Since completion of the tests, this model has sustained twice the design live load over a period of three years, without sign of deflection.

In another case, a prestressed concrete beam 1⅝ in. deep and 2 ft 6 in. wide was set up on a 10-ft span and made to bounce like a 2x4-in. timber without sign of a crack.

• **Applications**—The principles have been service tested also in the jointless prestressed floor of the John A. Roebling's Sons Co. warehouse in Cicero, Ill. (ENR Jan. 6, 1949, p. 68). This 3-in. thick floor has been carrying heavy concentrated loads since Oct. 1946, yet remains absolutely crackless.

In 1948, this general type of design emerged from the proving grounds into public construction as the floor of a suspension footbridge over the Delaware River at Lumberville, Pa. This floor (Fig. 2), designed to support a live load of 85 psf on a clear span of 8 ft 7½ in., weighs only 40 psf.

Because of the relatively short span of this slab, transverse prestressing of the floor was accomplished with ½-in. dia. high-strength rods, which were placed in waxed paper tubes to prevent bond with the concrete. The rods have a thread at each end (for prestressing and anchoring), which is rolled to eliminate the loss in net section that occurs with cut threads.

About 200 ribbed slabs, each 8 ft 7½ in. x 3 ft 11⅞ in., were precast on a mass-production basis in our plant by a method similar to that described in "Precast Floor Slabs for UN Housing" (ENR Mar. 20, 1947, vol. p. 455). Reinforced with 2-in sq. No. 10 mesh, the slabs were 1½ in. thick and had a clear span between ribs of 9x10½ in. They were removed from the forms when 24 hr. old and allowed to cure for two weeks. Then, the rods were stressed by hydraulic jacks like that shown in Fig. 5.

Since the slabs weighed only 1,050 lb each, it was a simple matter to truck them to the bridge site and set them in place. There, ⅝ in. dia. galvanized strands were threaded through them longitudinally and grout was poured in the joints between slabs. After the grout had cured, the strands were stressed.

Although the slab was found by computation to be adequate for all design loads, a check was made by testing a full-size sample slab. (This slab, incidentally, had been rejected for use on the structure. Handled too early, it had broken completely near the center. On the application of prestress, however, the parts came together to reform the complete slab. The crack practically disappeared and had no effect on the strength of the member.) This slab was found to be adequate under all design loads.

A punching test was made to check the adequacy of the 1½-in. thick slab under a chance concentration, such as might occur if a truck wheel rolled over a stone. A 23,500-lb load applied midway between ribs with a 6-in. dia. steel cylinder was required to punch through the slab. Since it was designed for pedestrian loads, the factor of safety is obvious. A 1½-in. thickness of slab evidently is ample for light highway traffic.

• **Prestressed roadway**—Another milestone has been reached. Under contract with the governments of El Salvador and Guatemala, the John A. Roebling's Sons Co. has designed and erected a continuous, suspension highway bridge across the Rio Paz between the two countries. Having a 210-ft main span and two 96-ft side spans, it features a prestressed-concrete floor system. The asphalt-paved roadway is 20-ft wide, designed to carry two lanes of H15-S12 loading and is flanked by a 3-ft 3-in. sidewalk of precast, prestressed concrete on each side. It was accepted by the two governments on July 14, 1949, after being subjected to full live load.

This bridge (Fig. 3 and 4) does not have stringers or floorbeams of the usual type. A 30-in. wide-flange beam along each side of the roadway does double duty as stringer and stiffening girder. Floorbeams are light members, whose only functions are to transfer the load a short distance from the girders to the suspenders and to support the sidewalks.

Weighing only 80 psf, the prestressed-concrete roadway spans 21 ft between the girders and is made up of 224 cellular, precast, prestressed members laid with the long dimension perpendicular to the direction of the traffic. Each of these units is 12 in. deep,

FIG. 5. CELLULAR ROADWAY SLABS for the Rio Paz Bridge were precast, then prestressed by a 50-ton jack.

21 in. wide and 21 ft 7½ in. long. The top surface has an average thickness of 2⅛ in., the bottom surface 1⅛ in. and the sides 1¼ in. Vertical ribs or diaphragms are placed 1 ft 11 in. on centers and average 2⅜ in. in thickness.

Each unit is prestressed by a ⅝-in. dia. galvanized bridge strand with a swaged fitting at each end. As shown in Fig. 4, this strand is looped around a saddle at one end of the member, threaded through holes in the vertical ribs and anchored against steel bearing plates at the other end. To produce a negative moment that will offset the existing dead-load moment and future live-load moments, the strand is located near the bottom of the unit at midspan and deflected upward at the quarter points of the span. The vertical load thus created is transferred from the strand to the rib through small cast-iron saddles set in holes cored in the rib.

The only reinforcing steel required is a 2-in. sq. No. 10 mesh in the top, bottom and sides. A piece of ⅜-in. channel cast in the bottom of the member near each end projects ⅝ in. below to bear on the top flanges of the girders and eliminate contact between concrete and girders. No grout was placed between the units, but a short length of concrete was cast at each end of the bridge.

The roadway is prestressed longitudinally by eight 1¼-in. dia. galvanized bridge ropes spaced uniformly across the width of the roadway. These ropes are located 6 in. from the top of the slab and are threaded through holes cast in the sides of the precast units.

Analysis of the roadway slab was based on the assumption that the prestressing load would make the indi-

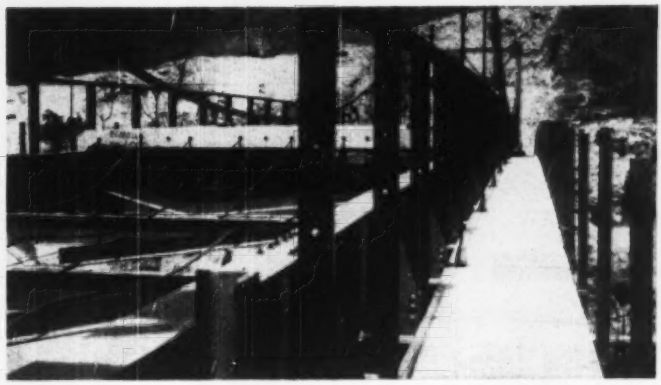


FIG. 6. STRANDS were threaded through the slabs to provide a longitudinal prestress that makes the roadway of the Rio Paz Bridge act under load as a single unit. Concrete sidewalk slabs also were precast and prestressed in much the same way as the roadway.

vidual precast units act together to distribute concentrated loads as a homogeneous elastic slab. The moments and shears acting on a single 21-in. wide member were computed by the method for "Distribution of Concentrated Loads by a Concrete Slab," described in "Reinforced Concrete Bridges," by Taylor, Thompson and Smulski. The section modulus was computed for the concrete in top, bottom and two sides. Tension and compression stresses for all points along the top and bottom surfaces of the member were computed for dead load alone or combinations of dead load, live load and impact.

A prestress load in the ⅝-in. strand of 30,000 lb was set to offset the tension stresses due to the dead and live loads without causing an excessive compression stress at any point. Final computations showed a maximum stress—under all combinations of loads and prestressing—of 950 psi compression and a zero minimum stress. The concrete mix was designed to give a minimum ultimate strength of 4,000 psi with ¾-in. maximum aggregate.

Longitudinal prestressing was designed to provide adequate shear transfer through friction between the individual units and to maintain a positive compression on all surfaces under the negative and positive longitudinal moments. The prestressing load required to satisfy the moment condition was 800,000 lb and proved to be the governing factor.

• **Units mass-produced**—The 224 members were cast on a production-line basis in six permanent forms with ¾-in. plastic-coated plywood sides. These were still in good condition after 40 uses.

The units were cast on their sides, the bottom side being poured against the back of a 12-in. steel channel, which was removed from the form with a member. This made it possible to pour one unit per day per form. Blocks and falls for removing the finished members, which weighed 3,000 lb apiece, were hung from a wooden framework erected over each form.

To prevent too rapid setting of the concrete in this hot climate, 1 lb of an admixture was used per bag of cement. The admixture also gave the mix a greatly increased slump, which facilitated the pouring of the relatively thin section. The newly cast members were kept under water-soaked burlap for a week and then sprayed regularly with a hose for another week.

Both ends of the ⅝-in. dia. strand were prestressed in one easy operation with a 50-ton hydraulic pushing jack (Fig. 5) mounted between the strand ends and acting against a yoke. A threaded rod with a coupling was used to attach each strand end to the yoke. The jack was then pumped to a load of 60,000 lb. While this load was being carried by the jack, the nuts on the swaged fitting were run up finger-tight against bearing plates in the end of the slab. The load was then released and the jacking equipment removed, leaving 30,000 lb in each strand.

After the structural steel was erected, the prestressed sections were placed on the bridge. To prevent excessive distortion of the suspension system due to unequal distribution of dead weight, the first sections were strung at intervals along the bridge with the 1¼-in. ropes threaded through. The remaining sections then were threaded onto the ropes at the end of the bridge, the sections on the bridge being pushed closer together.

When all 224 sections had been erected, slabs at each end of the bridge were poured. These varied in length to offset "packing" of the precast slabs.

After the cast-in-place slabs had cured for seven days, the longitudinal ropes were prestressed in a manner similar to that described for the ⅝-in. strands. The precast curbs were then placed along each side of the roadway and keyed with grout to lug angles attached to the structural steel. The roadway was completed by adding a wearing surface of asphalt.

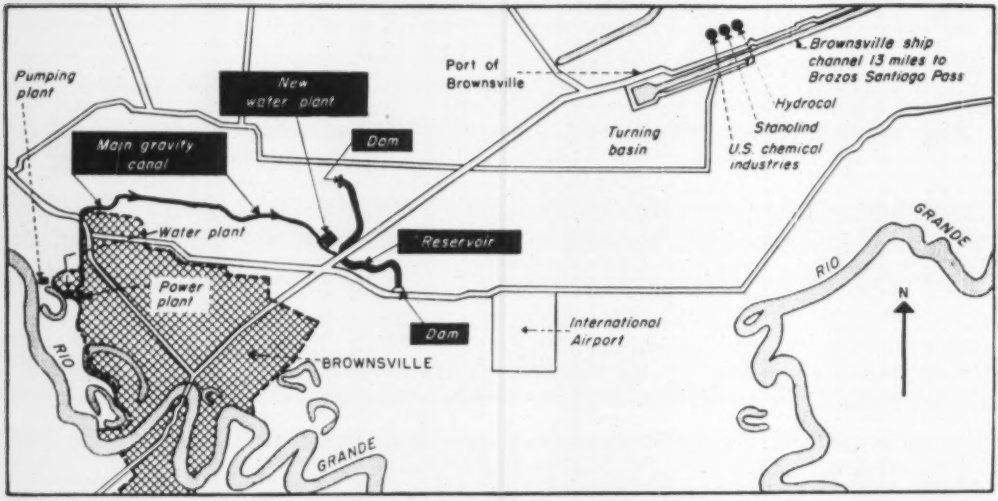
The prestressed concrete sidewalk slabs, which are similar to the Lumberville slabs, are 3 ft 3 in. wide and span 7 ft. They are 1¼-in. thick and have two 6-in. deep ribs in the 7-ft direction. Prestressing was done as for the roadway slabs but with two ½-in. dia. high-strength rods in each rib. The rods were covered with a cotton sleeve, which prevented bonding with the concrete and proved to be much cheaper and easier to handle than the waxed tubes used at Lumberville.

• **Bright future predicted**—With these developments, a new type of prestressing system is available. It appears to have all the advantages of the systems developed in Europe, but is particularly well adapted for use in the U.S., since it is derived from materials and practices that have long been used here. Furthermore, it removes the necessity for many assumptions that must be made in the design of other systems regarding the volume change of concrete and the creep of steel.

It is worthy of note that, given time, galvanized bridge wire will reach stability (i.e., no additional change of length) under stresses as high as 180,000 psi. On the other hand, the proportional limit for the wire as manufactured is about 120,000 psi, and is increased materially after prestretching; yet we use as design working tension of 105,000 psi, keeping in mind the desirability of maintaining a normal safety factor with respect to the true yield point. The use of higher unit stresses for galvanized bridge wire awaits the development of wire that has a higher true yield point.

Steps have already been taken to produce such wire. It is confidently anticipated that higher unit stresses can soon be used with assurance that there will be no reduction in tension due to creep of steel.

This improved galvanized bridge wire shall have a true yield point of about 215,000 psi based on the gross area, and the design working tension under live load can be a maximum of 120,000 psi without creep of steel.



EXCESS COOLING WATER from the municipal power plant—canal-conveyed to and stored in a "resaca" reservoir and treated in a new filtration plant provides . . .

More Water for Industrial Expansion

FIRST-QUARTER STAGE of a new 20-mgd municipal water-supply and treatment system—to meet the thirsty demands of expanding industry—has been completed at Brownsville, Texas.

This $775,000 project is the initial step in a $3.5 million general utility-expansion program started two years ago. Reasons for the utility construction are: Rapidly expanding import-export trade; extensive truck, rail, barge, air and deep-water traffic; and construction of three heavy-chemical-processing plants—involving a $100 million investment—in the area served.

• **What the program embraces**—The overall functional plan (map) for the new water supply is:

1. River water pumped to and desilted in impounding reservoirs, preparatory to first use in the municipal power plant for water-cooling purposes.

2. Cooling water discharged from the power station is the domestic raw water supply.

3. Excess cooling water conveyed from the power station through five miles of lined canal to a new reservoir adjacent to the purification plant.

4. Temporary storage of water to be treated in a 100-mgd natural-basin open reservoir.

5. Treatment in a 5-mgd conventional water-purification plant located in the northeast section of the

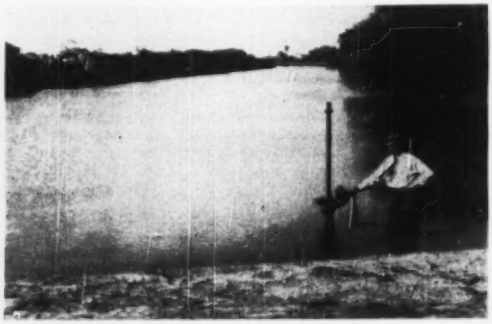
WATER RATES

Brownsville, Texas

Minimum Charge 4,000 gal.—$1.25
Next 6,000 gal. at $0.25 per thousand gal.
Next 10,000 gal. at $0.23 per thousand gal.
Next 30,000 gal. at $0.18 per thousand gal.

All water used over 50,000 gal. at 14¢ per thousand.

A CANAL—half-circle in section and lined—conveys raw water pumped from the Rio Grande to the "resaca" reservoir.



AN OLD RIVER BED—a "resaca" dammed up at both ends—creates a natural narrow reservoir, three miles long.

city adjacent to the industrial-expansion area (plan).

6. Transmission of treated water to the city distribution system in new adequate-capacity mains.

• **Water is used twice**—Water supply is drawn from the Rio Grande by large-capacity pumps serving the city-owned power plant. After this water has been desilted in large earth-embankment reservoirs, it is used first for condenser cooling water and then a portion of the effluent is claimed by the water-supply system. Ratio of condenser-to-domestic demand is about 10 to 1, permanently assuring sufficient raw water for municipal consumption.

• **How water is transported**—Excess cooling water is conveyed to the new purification plant in five miles of gravity lined canal. Of this length 3.2 mi of existing canal was available and applicable to the project without cost. Special contract arrangements with the Cameron County Water Control and Improvement District No. 7 (irrigation) were required to permit use of the main canal and related structures belonging to the district.

A new canal, 1.8-miles long, was built to bring raw water from the main channel to the purification plant. The cost of this 8-ft half-circle tile-lined-on-reinforced-concrete canal was about $71,600 including excavation, lining, headwalls and siphons and incidentals.

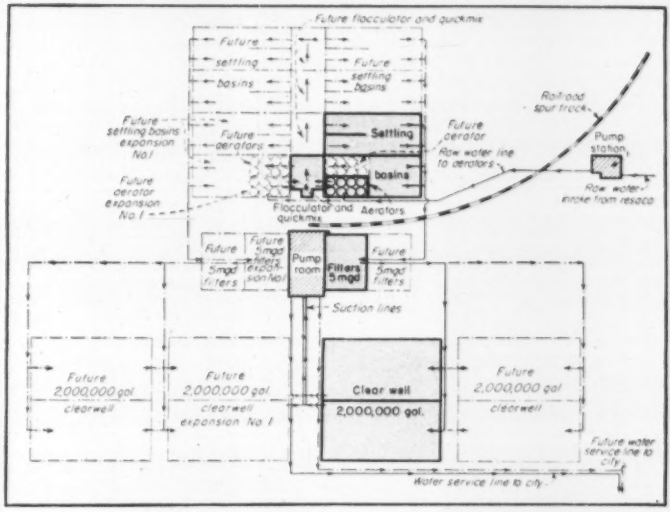
• **Water Storage**—The raw-water supply canal empties into an open reservoir adjacent to the new treatment plant. This 30-mg, 3-mile reservoir is formed in a natural ravine called a "resaca", a Spanish term meaning old stream bed.

Water is confined in this basin by two small dams, one at each end of the reservoir.

A contract agreement with the Cameron County Water Control and Improvement District No. 5 irrigation district was required to obtain rights for storage of water in the "resaca."

Sanitary regulations—adopted for the new watershed area—will be enforced by the city.

• **Features of plant**—The new (and second) water-purification plant is located in the northeastern section of the city adjacent to the area of industrial development. This 5-mgd unit is the first step of a 20-mgd program; it has been designed so that future expansion can be made with a minimum of service interruption and construction difficulty.



THE WATER-TREATMENT PLANT—laid out in identical units—will be expanded in four stages to anticipate increased consumption.

Some features of the plant are:

1. The main pump-room floor is level with the filtered-water clearwell, providing positive suction to high-lift as well as wash-water pumps.

Because the filter-operating floor is 21.5 ft above the pump room, access to equipment is by elevator. Emergency access to the pumproom is by steel stairway.

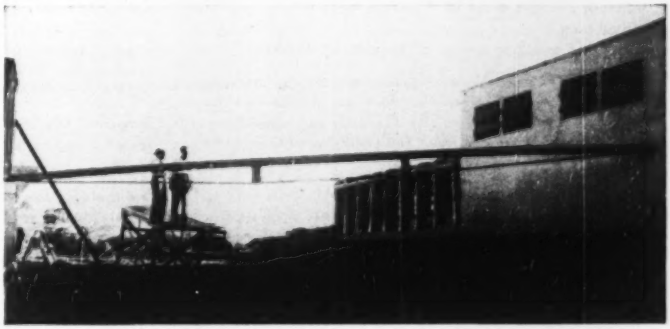
2. Filter building and high-head pump room are an integral reinforced-concrete structure. All concrete above grade has full architectural effect and finish. Wall space in the filter section consists of about 90 percent windows with "Maxim-air" sashes for maximum ventilation.

3. All control facilities are centralized to facilitate operational management. The office, laboratory, recording instruments, chemical storage, chemical-feed machines, chlorinators, and electrical remote-control panels are centered on the second floor of the pump-and-filter building. This arrangement makes it possible for one employee to control all phases of water purification without leaving the second floor.

4. Raw-water pumps are located in an individual station (map). All units are below the reservoir-water level to give positive suction. Pumps are started and stopped by remote control from the main-building operating floor.

5. A railroad spur immediately adjacent to the unloading platform serving chemical storage facilitates carload shipment direct to the plant.

6. Duplicate underground elec-



CHEMICAL SOLUTIONS are conveyed from the feed room to quick-mix basin (left) in a multiple-channel structure suspended between the buildings.

tric conduits. Power is available primarily from the city-owned utility but may be obtained also from private companies.

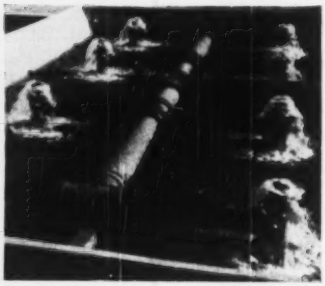
7. All major piping in the first 5-mgd treatment unit is large enough to serve the ultimate capacity of 20 mgd without alteration.

8. Overall design of aerators, quick mix, flocculating and settling basins, filters and filter piping, and clear wells is reported to be such that the entire plant will be in perfect hydraulic "balance" each time capacity is stepped up by addition of another unit.

9. Considerable economy in pumping operations can be effected by dispatching load requirements between the old treatment plant in the Southwest section of the city and the new facility. This will be done as demands vary in different parts of the distribution system.

• **New transmission mains**—The city was served from the old plant through two 12-in. transmission mains to business district. The two 12-in. lines followed nearly parallel East and West routes in extreme South sections of city but did not adequately serve the northwest, north and northeast portions of the city.

With completion of the new plant, a new 16-in. transmission main connects this plant by extending due south into the business area intercepting all lines encountered. It also feeds an additional 12-in. line which runs west and south from new plant



ADJUSTABLE CONES will be installed in aerator outlets.

through heavily populated residential areas.

With the old plant situated on the extreme southwest edge of the city, and the new plant in the extreme northeast portion, the distribution system can now be pressured or serviced from either or both plants depending on area or areas creating largest demands.

• **Construction factors**—A high water table was encountered at the new-plant site and soil at the lowest foundation elevation is fine sand with occasional clay strata. With foundations 5 to 15 ft below the water table, the excavation was dewatered with well-points, operated continuously.

One factor that facilitated completion of the project was the early contract award for equipment. Filter and treatment mechanisms were ordered well in advance of the general construction award. This foresight eliminated the usual delay in receiving this type of equipment.

Similarly, special fittings and piping were delivered to the contractor well ahead of schedule.

• **Project personnel**—The new water-supply program was evolved by Sigler, Clark and Winston, consulting engineers of Weslaco, Texas who designed and supervised construction of first-step facilities. The general construction contract was carried out by Dodds and Wedegartner, San Benito, Texas.

Electrical equipment was furnished by H. L. Scott Electric Co., of Corpus Christi while filter-mechanisms were manufactured by E. W. Bacharach, Inc., Kansas City, Missouri. Piping and special fittings were obtained through the American Cast Iron Pipe Co. Birmingham, Ala.

City officials of Brownsville under whom the work was carried out are: H. L. Stokely, mayor, and E. W. Watts, city manager.

Credit is also given by the city officials to W. I. Gilson and J. W. Shidler managers, respectively, of the Cameron County Water Control and Improvement District No. 5 and Cameron County Water Control and Improvement District No. 7. They are reported to have given full cooperation and valuable assistance in solving legal, financial and operating problems that made the project possible without delay.

DESIGN AND ENGINEERING DATA

Brownsville, Texas, Water Purification Plant

Treatment: Conventional design for following treatment: Aeration, chemical, quick-mix, flocculation, sedimentation, rapid sand filtration, pre- and post-chlorination.

Capacity: 5 mgd based on 2 gpm per sq ft of filter-sand area. New plant of 5-mgd capacity combined with old plant capacity of 4 mgd serves an estimated population of 35,000.

Raw-Water Characteristics: Source—Rio Grande. Thoroughly pre-settled in earth embankment reservoirs. Average turbidity—100 ppm consisting of fine clay suspension and organic matter. Average alkalinity—120 ppm. Total hardness—275 ppm. Total dissolved solids—600 ppm.

Aeration: Eight adjustable cone nozzles.

Chemical Feed: Four fully enclosed, dust-proof chemical-feed machines. Chemicals fed—aluminum sulphate, hydrated lime, activated carbon. Chemical Quick-Mix: One vertical propeller. Retention period—three min.

Flocculation: Four horizontal adjustable-pitch cypress paddles driven from vertical shaft. Retention period—45 min.

Settling Basins: Two reinforced-concrete basins, straight-flow, hopper-bottom design. Retention period—six hr.

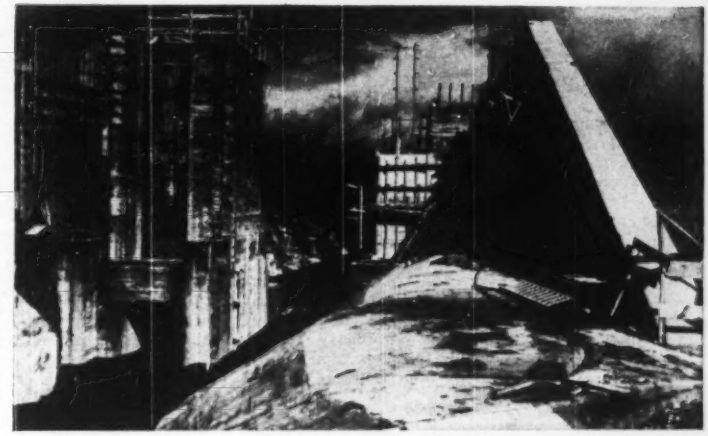
Filters: Four reinforced-concrete rapid sand units. Vitrified-clay tile underdrains. Rate of flow controllers with automatic shut-off. All valves hydraulic operated and controlled from operating tables. Rate of flow and loss of head instruments on each control table. Back wash to filters by wash-water pump taking suction from clear-well.

Clear-well: One reinforced-concrete underground clear-well composed of two compartments of one mg. each. Total capacity—2 mg.

Chlorinators: Two chlorinators with visible vacuum. Capacity each—400 lbs per 24 hr. Points of chlorination are selective and can be pre or post as desired by operating personnel.

Pumps: Raw Water—Two 3,500 gpm horizontal split-case units and one 5,250 gpm unit. High Service—One 3,000 gpm; one 3,550 gpm, and one 5,250 gpm unit. All high service pumps are horizontal-split case type and 200-ft, total dynamic head.

(Equipment listed is identical for each development stage)



DEAD RIVER diversion passes first of two intake gates. This downstream view shows retaining wall (right) that will divide earthfill and concrete sections. (ENR staff photos)

How To Build a Small Dam:

• Specify earthfill where short-haul economies outweigh limited-space placement costs.

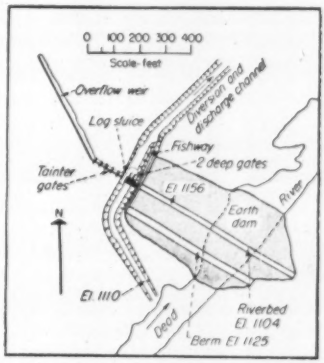
• Select the inexpensive paver and crane combination for concreting if crane can put bucket over all forms.

• Place batch bins at high point of pit-to-dam road, allowing downhill run for light trucks carrying concrete materials.

IN MAINE, Long Falls Dam is considered just another job—one of many dams that have been built to develop the state's water resources. But because both designers and contractors have brought their experience from other dams to this one, their practices contain time-tested ideas for small-dam builders in states whose water resources are less fully developed.

Long Falls is a series of rapids on Dead River, a tributary of the Kennebec. It is 15 miles east of Stratton, in Maine's near northwest corner. The new dam will increase the Kennebec's storage capacity by one-third, creating a reservoir 26 miles long. Because Dead River's gradient is practically nil above the site, the dam has a maximum height of only 52 ft, 12 ft of which is freeboard.

Running along the centerline from right to left bank, the structure includes 680 ft of earthfill, 200 ft of control works and 450 ft of concrete overflow section. The control works include a fishway, two deep gates, a log sluice and five tainter gates. The dam now is nearing completion. Major quantities include 12,000 cu yd stripping 40,000 cu yd unclassified excavation, 11,000 cu yd rock excavation, 7,500 cu yd concrete, 70,000 cu yd impervious fill and 63,000 cu yd pervious fill.



LAYOUT drawing shows earth and concrete portion of Long Falls Dam, and direction of Dead River's flow at site.

• **Materials situation good**—Suitable materials for both earthfill and concrete aggregates existed at distances ranging up to two miles from the site.

Perhaps the most fortunate circumstance leading to the choice of the earthfill type was the presence of a high-silt glacial deposit at the dam's right abutment. This material was ideal for the impervious core. The choice was made in spite of high costs normally encountered in placing compacted fill over relatively small areas (large proportion of machine time devoted to turn-around; large proportion of hand work where machines can't reach). The high placement cost would be more than offset by short-haul economies.

Being subject to close moisture control (optimum moisture 7-8 percent), placement of the core material also was subject to frequent interruptions due to weather changes. However, because of the short pit-fill haul, few trucks were needed, so whenever rain stopped placement, those few trucks could be transferred to assignments on

various jobs almost immediately.

Another fortunate circumstance lay in the nearby borrow material's composition in the smaller sizes—30-50 percent passing the 200-mesh screen, with hardly any clay. These properties furnished sufficiently low permeability, and at the same time made for easy processing. Specifications called for removal of stones larger than 6 in. The contractor thought he might have to process with a shaking screen, but found that the stones came clean off a 6-in. stationary bar screen set at a 30-deg angle. Low clay content made the material loose enough for the inexpensive separation method.

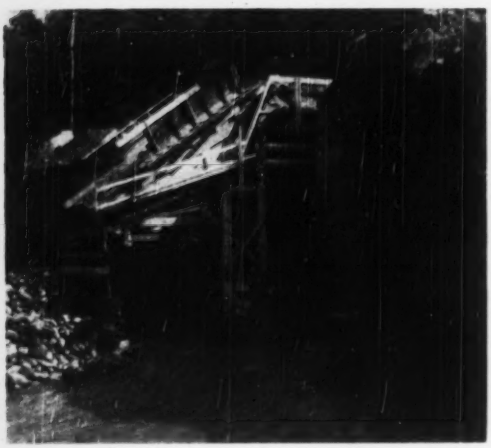
A 1¼-yd shovel worked the pit, loading two 6-yd trucks that dumped to the bar grizzly. Three more trucks worked between grizzly and dam, taking processed material directly from the underside of the screen. On the dam, two bulldozers spread and two three-drum sheeps-foots rolled 6-7-in. layers of the impervious material to 95 percent compaction (modified Proctor). Generally, six to twelve roller passes did the job.

When rains came, portions of the compacted area were covered with 20x20-ft tarpaulins or smoothed with dozers and wobble-wheel rollers. These methods were not entirely effective, so when operations resumed, wet surfaces were skimmed with dozers and scrapers, to expose good fill.

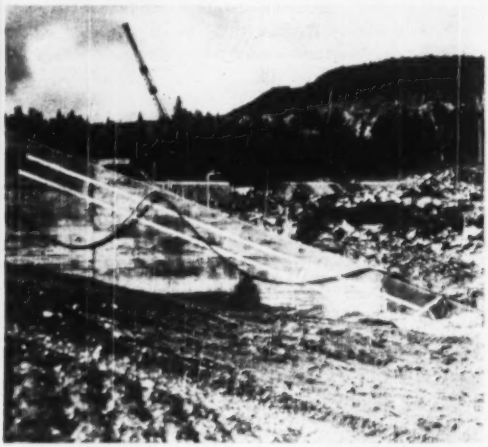
This impervious fill was built up with 1.5 on 1 side slopes, to 15-ft top width. Pervious fill was carried up at the same time, with 1 on 2.5 side slopes. This material, containing less than 3 percent passing the 200-mesh screen, came from pits one and two miles away. Rubber-tired wobble-wheel rollers compacted this material.

Both outside slopes were covered with gravel and rip-rap. This treatment was specified for the downstream slope to prevent the growth of grass and consequent maintenance and forest-fire problems.

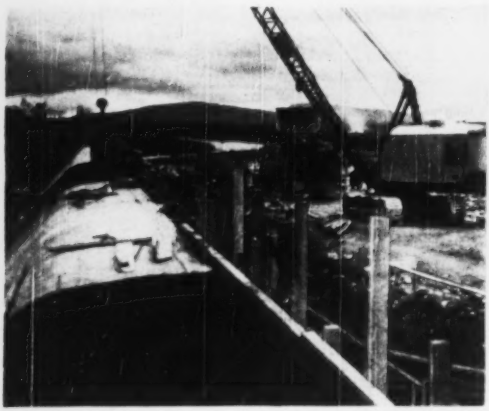
Rock toes were built at both the downstream and upstream sides. The latter formed a 15-ft wide berm 31 ft below the crest, and served as a cofferdam, being blanketed with clay



MATERIAL FOR IMPERVIOUS FILL from pit at the dam's abutment was processed through a stationary 6-in. bar screen. Waste went to riprap.



GUIDE LINES on retaining wall showed machine operators how deep to lay pervious fill, gravel and riprap. Dam's overflow section is seen in background.



PAVER, CRANE AND BUCKET were a self-contained concreting combination for this small dam, because machines were automotive, and the crane could put the bucket over all forms.

AGGREGATE MANUFACTURE took place at pit two miles from dam. Portable plant produced three sizes. Screen in background separated material for downstream riprap.

when the river's water was diverted.

Diversion took place through a new rock channel. Maximum depth of rock cut was 20 ft in trap and granite with clay-filled seams (hardly any foundation grouting was necessary).

• **Dam's concrete section**—The channel crossed the centerline at the two deep gates, carrying diverted water through the space for one gate while the other gate structure was built. One 5x8-ft gate and the space for the other are shown in the first picture, which also shows the fishway construction and the retaining wall that separates earth work from concrete work. Farther to the left extend the remainder of control works and the overflow weir. The log sluice is 6 ft 6 in. wide and each of the five tainter gates is 10 ft high by 20 ft wide. Deep gates and tainter gates are to be operated by portable gasoline engines; to keep gates unfrozen in winter, steam coils are provided at the seats.

The overflow weir ranges in height from 15 ft next to the tainter gate to zero at the left abutment. It has a vertical upstream face and an ogee downstream face. A feature of weir construction is the provision for relief of foundation water pressure. A small channel, formed in the weir's base along the centerline, takes seepage from 15-ft deep holes drilled into foundation rock at 20-ft centers. The water is discharged to the downstream face through weeper pipes at 25-ft centers.

• **Paver, crane do concreting**—It was in the construction of these concrete works that the experienced contractor scaled his methods most nicely to the job's magnitude. Maximum structure height was about 40 ft, all accessible to a crane with 80-ft boom, so the contractor figured on crane and bucket placement. With the crane he paired a single-drum 27E paver. The machines mixed and placed all concrete from a road graded along the dam's upstream side, and from the earthfill.

The road continued across the river bed to the right bank, to connect with a system of construction roads. Trucks brought mixer batches over these roads from a weigh-batch plant at a high point a mile away. The aggregate source was nearly a mile farther, at a point on Dead River downstream from the dam. Here the contractor manufactured and washed two sizes of coarse aggregates—¼-in. to 1-in., and 1-in. to 2½-in. He also obtained good sand from the same bank and added a small percentage of fine sand from another source to provide the required gradation. Material to be manufactured was clamshelled from the gravel bank to an 8x12-in. bar screen that fed a portable crushing and screening plant (illustrated).

The three sizes were hauled by 6-ton trucks up to the batch plant, where quantities were weighed into 1½-ton trucks (three batches) for the downhill run to the dam. Sacked cement was added at a warehouse along the way.

The location of the batch plant, at the high point of the pit-to-dam haul, was smart construction management. It enabled the contractor to use a set of heavy trucks for uphill work and a set of light trucks for downhill work.

There were two reasons for not following the river's gradient between pit and dam: (1) A road to the batch plant was necessary anyway, for access to an earthfill borrow pit near the plant; (2) steep riverside bluffs and dense woods would have made road construction unduly expensive on the shorter line.

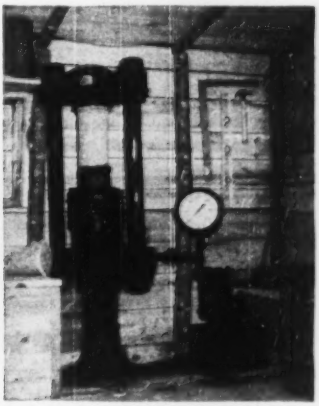
Another bit of balancing methods with the job to be done took place in connection with form work. Bulky elements involving curved surfaces and special details were built in place. Flat panels were built in a carpenter shop at the contractor's camp a half mile from the dam. The decision to build some large elements in place was due to rugged haulage roads between shop and site—a condition that would have exposed truck-mounted bulky forms to excessive racking or shaking stresses.

Rugged backwoods site conditions imposed many other practices upon both contractor and engineers. For instance, the contractor had to set up complete subsistence facilities for his men. The engineers had to set up a testing laboratory that was a bit more complete than the field lab usually encountered on jobs. In addition to screening, drying and weighing equipment, there was a testing machine for breaking 6-in. concrete cylinders, and a Proctor mold for soil tests of maximum density—optimum moisture.

Long Falls Dam is a project of the Central Maine Power Co., Augusta. It was engineered by Nepsco Services, Inc., Augusta, whose resident engineer was Karl B. Whitcomb. Contractors were Wyman and Simpson, Inc., Augusta. Walworth Simpson, owner, spent most of his time on the job, and his superintendent was C. W. Bagley.

Stripping for the dam began in April, 1949; channel diversion took place Aug. 1, and the whole job will be complete early this year.

HILLTOP BATCH PLANT receives material brought up from pit in heavy trucks, feeds light trucks for downhill run to dam. Extra bin at front of three-compartment bin held fourth aggregate size.



CONCRETE CYLINDERS were tested in on-job lab because commercial lab was too far from the backwoods dam site.

Steel Braces Hold High Clay Bank in Albany

How an unstable bank was supported for building construction

Charles B. Spencer
Spencer White & Prentis, Inc.,
New York, N. Y.

FOUNDATION CONDITIONS in Albany, New York, paradoxically are both the simplest and the most difficult to be found anywhere in the East. The top material nearly everywhere is a sandy gray clay that may be used to support safely unit loadings of at least three tons per square foot. Excavation in this material involves no problems, and in most cases sheetpiling is not necessary to support banks 10 ft or more in height.

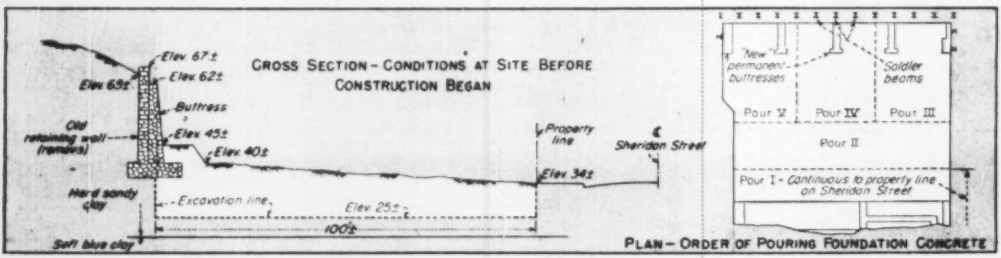
Below this material and usually extending to within a few feet of rock, is a soft blue clay containing no sand. Its consistency varies, but may be described roughly as that of putty or perhaps modeler's clay. When not subjected to disturbance, the material will support the loadings of smaller buildings, although care always is required in the foundation design. When adjoining footings are placed at different elevations, the high-level footing must be protected against displacement of material. Also the possibility of construction at lower levels in adjoining properties must be given careful consideration. In short, the problem is one of lateral movements in the material rather than of compression under load.

The new building for the Albany TIMES-UNION, now being built on Sheridan Ave., is not a heavy structure, although unit floor loadings are as high as 250 psf, to provide for newspaper-printing machinery.

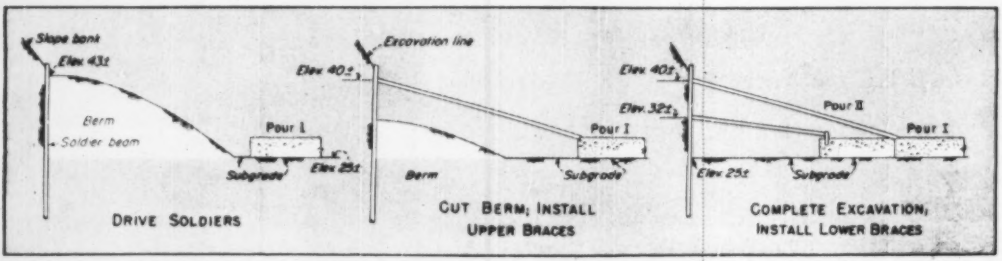
In designing the building, the architects, Gander, Gander & Gander, after considering bearing piles driven to rock about 30 ft below the street, decided to found the building on the soil, 9 ft below street level, at a unit loading of 2 tons per square foot. One of the chief considerations in adopting the spread-footing design was the fact that the adjoining TIMES-UNION building, similar in construction, was placed on the soil at approximately the same elevation. This building had been built in 1922, and no settlements or other adverse circumstances that are noticeable had taken place.

• High bank creates problem—In the construction of the original building, the chief problem had been the support of the bank in the rear, and this had been accomplished only with the greatest difficulty. The first drawing is a cross section showing the original condition of the site of the new structure. It will be seen that the terrain sloped up from the street at El. 34 to the bottom of an old masonry retaining wall at El. 40. The ground behind the retaining wall in turn sloped up from El. 65 to El. 72, and several buildings facing on the high street extended to within 60 ft of the TIMES-UNION property.

The design of the building required the removal of the old retaining wall. Since the bottom of the new foundations was at El. 25, it was necessary to support a bank 40 ft high. Investigations showed that the material in the bank was hard clay containing sand as described above. Borings taken at the TIMES-UNION property showed that the transition to soft blue clay



EXCAVATION for new Times-Union building went several feet below old retaining wall (left). Plan (right) shows how concrete next to bank was poured in three sections to prevent lateral flow of soft blue clay.



BRACING SYSTEM held soldier beams in place as excavation proceeded. Beam spacing was 6½ ft. Timber lagging inserted behind beam flanges contained earth bank.

occurred several feet below the new subgrade.

Before deciding to build, the owners had requested the writer to examine the site and report on the feasibility of the proposed design. They were advised that the writer considered it entirely practicable to support the bank during construction. Approximate estimates of cost indicated that this bank support, although costing nearly double that of the same operation under more favorable conditions, still was an unimportant item in the cost of the entire building.

The recommended procedure which was carefully followed in the actual construction was as follows:

1. Remove the retaining wall in sections, cutting back the bank on a slope about 25 deg. from the vertical.

2. Drive bearing piles (soldier beams) along the bottom of the slope, on 6½-ft centers, extending from a point about 3 ft above the bottom of the slope to rock at elevation zero.

3. Excavate as required, starting from the street side, and install the new foundations to a point about 45 ft from the rear line.

4. Install steel braces supporting each soldier beam against the foundation work in place.

5. With the first tier of braces completed, continue excavation and foundations to a point about 30 ft from the rear line.

6. Remove the berm to El. 32, installing horizontal louvre boards between the soldier beams as excavation progresses.

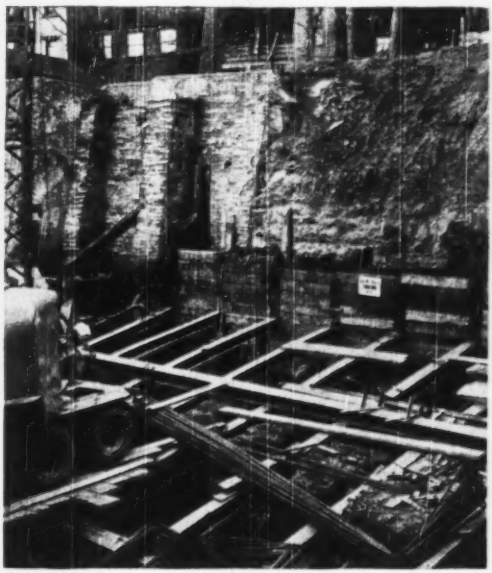
7. Install a second tier of braces against the soldier beams at El. 32, supporting them at the concrete foundations 30 ft away.

• **"Squeeze" danger investigated**—Before placing the rear 30-ft foundation strip it was deemed necessary to investigate the possibility of the underlying material rising due to the weight of the high bank above and behind the site. We requested Prof. Gregory Tschebotarioff, head of the department of soil mechanics at Princeton University, to advise us in this regard. Professor Tschebotarioff inspected the material at subgrade adjoining the foundations already in place (Pour II) and found the material to be hard clay with a considerable sand content. However, samples taken about 7 ft below subgrade indicated the presence of the soft blue clay already described. From his analysis of the samples, Professor Tschebotarioff concluded that the factor of safety against "squeeze" was only 1.1. This figure disregarded the fact that the lot was only 75 ft wide, with the building on one side and the original bank on the other. It was estimated that this condition added 0.5 to the factor of safety. Even this factor was too small, so it was decided to install the final strip in three sections (Pours III, IV and V).

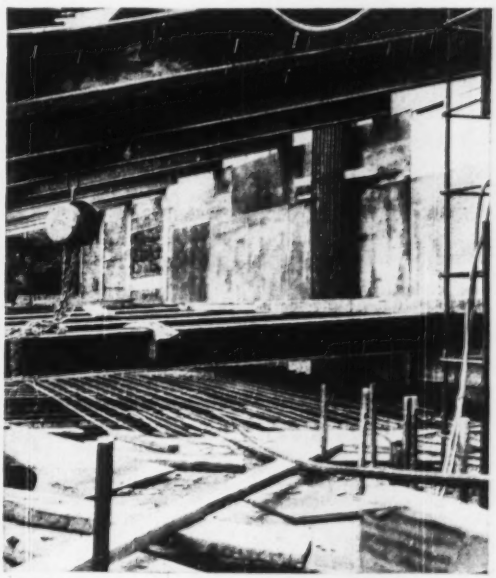
This was done, and the foundations were completed without any measurable rise in the material at subgrade. As this is written, the lower two stories of the building are in place, including a new retaining wall completed up to the upper tier of braces. The lower tier has been replaced with struts and the braces removed. It will be noted in the plan (order of pouring foundation concrete) that the design provides permanent buttresses against the new retaining wall; when this construction is in place the upper-tier braces will be removed.

To prevent any accumulation of water against the retaining wall, a 2-ft layer of gravel is provided between the retaining wall and the sheeting system. It is proposed that this gravel will be stiffened in places with grout, so as to transmit the bank pressures to the retaining wall before the braces are removed.

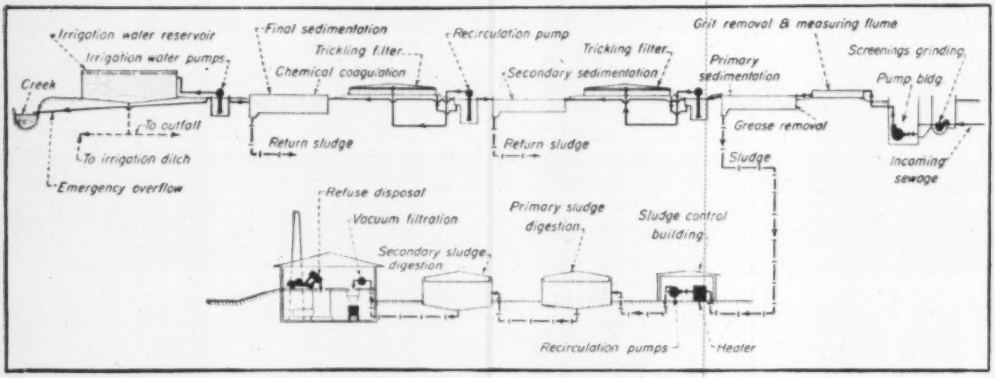
The writer wishes to thank the Hearst Publications Inc., owners; Messrs. Gander, Gander & Gander, architects; and the White Construction Co., general contractors, for their full cooperation on the work. Harry Tear, vice-president, and William English, superintendent, manage the job for White Const. Co. Spencer, White & Prentis, Inc. personnel include Joseph C. Weaver, vice-president; Donald B. McKinley, general superintendent; and Mario Canale, job superintendent.



UPPER BRACES in place for lower-berm removal, which already is underway at left (truck crane and clamshell).



LOWER BRACES installed, outer wall forms in place (plywood panels against soldier beams and laggings).



TWO-STAGE TRICKLING FILTRATION with chemical coagulation in the final sedimentation tank will turn out sparkling clear effluent suitable for irrigation use. Vacuum filter and incinerator are located in the same building.

Flexibility Dictates Design Of College Sewage-Treatment Plant

COMPLETE FLEXIBILITY of operation is provided in a 2.2-mgd. average flow sewage treatment plant now under construction on the Davis campus of the University of California.

The plant will meet such unusual conditions as flow from experimental food cannery units and future complete campus-wide installation of garbage grinders. Yet effluent is expected to be suitable for irrigation purposes. Included is an incinerator with a large combustion chamber to be used for burning combustible refuse and also for burning animal carcasses resulting from experimental work.

The Davis campus of the University of California is essentially an agricultural college. Sanitary sewage is contributed not only by a resident population of 1,154 but by a non-resident population of 1,232 (1960 estimate is 3,300 resident and 3,300 non-resident). Although the experimental cannery unit will be operated only intermittently, more than half the plant's hydraulic capacity must be available

DESIGN AND ENGINEERING DATA, DAVIS CAMPUS

General: Plant is essentially for sewage treatment but also includes a combustible rubbish incinerator and involves water reclamation for irrigation.

Treatment: Comminution with bar screens on bypass, grit removal, primary sedimentation, with provision for aeration, two-stage trickling filtration with sedimentation between stages, final sedimentation including chemical coagulation, effluent chlorination, two-stage sludge digestion, vacuum filtration.

Capacity: 2.2-mgd. average flow, 2.9-mgd. max. Average includes 1.1-mgd. domestic flow and 1.1-mgd. cannery flow.

Sewage characteristics: 3,370 lb./day suspended solids to digestion tanks including 2,200 lb./day ground garbage and 90 percent removal of 1,300 lb./day in sewage flow. BOD in sewage flow 1,660 lb./day, in material from garbage grinders 2,750 lb./day.

Comminution: Total sewage flow subjected to grinding by Chicago Pump type unit. 2-in. bar screens on bypass.

Grit removal: 2 x 25 x 3 ft. chamber with continuous scraping. Measuring flume provided here.

Primary sedimentation: Three 12x70x10-ft. tanks with first 22 ft. provided with air inlets with 0.1-cu. ft./gal. capacity for 0.5-hr. detention. In 48-ft. sedimentation section, detention is 1.5 hr. with an 800-gal./sq.ft./day subsidence rate and 15,000-gal./lin.ft./day overflow rate resulting in 35% 5-day BOD removal. Continuous longitudinal type sludge removal.

Trickling filters: Two 80-ft. dia. units each 4 ft. deep, operable in series or parallel. 5-day BOD loading 1.2 lb./cu.yd. rock/day.

Secondary sedimentation: Two 15x80x10-ft. tanks with 2-hr. detention, 900-gal./sq.ft./day subsidence rate and 15,000-gal./lin.ft./day weir overflow rate.

Final sedimentation: Two 15x80x10-ft. tanks with first 20 ft. usable for chemical coagulation with 0.1-cu.ft./gal. air agitation. Detention period is 0.5 hr. for coagulation section and 1.5 hr. for sedimentation.

Chlorination: Two 400-lb./day units capable of 20 ppm. dosage at average flow.

Pumping: 4 sewage lift pumps (1 future) with 2 — 300 gpm. and 2 — 600 gpm. (1 future). 2 — 4,500 gpm. capacity pumps for 2 to 1 trickling filter recirculation ratio.

Sludge digestion: Two 40-ft. dia., 22-ft. swd. units with floating cover on both. Gas used for sludge heating. Total volatile solids loading 2,500 lb./day.

Vacuum filtration: One unit to be operated about 30 hr./week. Moisture content reduced from 95 to 70 percent with dry solids loading of 4 lb./sq.ft. filter surface/hr.

Irrigation water reservoir: One 100-ft. dia., 18-ft. swd. tank with 1 mg. capacity.

Refuse incineration: One continuous stoking (Nichols Monohearth) incinerator unit with capacity for 4,040 lb./day combustible animal matter and 4,900 lb./day combustible miscellaneous refuse.

to accommodate this unit. It also will add significantly to the biochemical oxygen demand and volume of suspended solids.

Although there is no significant installation of garbage grinders on the campus at present, sewage-plant capacity will accommodate complete installation of these units. The university is considering garbage grinders in each of the dormitory messhalls. Almost two-thirds of the sludge-digestion capacity is required for this future garbage-grinder installation. This installation also will add considerable BOD loading.

Trickling filter operation

Trickling filters can be operated in either parallel or series depending on plant loading and quality of effluent desired. If parallel operation is followed, flow will be somewhat as follows: Sewage entering the primary-sedimentation tank will be aerated for flocculation only. Flow will then be split equally between the two trickling filters. The liquid will be recirculated through these units on a 2 to 1 basis. The liquid flowing through will be subjected to simple sedimentation in the secondary units.

Final-sedimentation units include provision for dosage with ferric chloride and mixing by aeration. This will provide a clear effluent suitable for irrigation usage.

Sludge removed from the primary-sedimentation tank by continuous longitudinal-type scrapers will be pumped to digesters. Sludge from secondary- and final-sedimentation tanks will be returned to the primary unit. Thus, the only sludge reaching digestion tanks will come from primary units. Sludge will be heated before entering the primary digester.

Sludge-digester liquor will be returned to trickling filters. At this stage about 25 percent of the BOD load of the garbage will still be in the liquid.

Digested sludge, after conditioning with ferric chloride, will be dewatered on a vacuum filter. Filter cake will be used as fertilizer on the experimental farm or it can be burned in the incinerator. A program of experimentation with direct use of filter cake as fertilizer is being considered.

With about 9,000 lb. of combustible refuse and animal matter to burn daily, the incinerator will operate about six hours a day. The load of animals from the university laboratories will, of course, vary greatly and operating schedule of the incinerator will vary correspondingly.

It is contemplated that the plant can be operated by two men, one operator and one combination incinerator operator and jack of all trades.

There is a possibility that this small plant will be used for sewage-treatment-operator short courses in California. Dormitory facilities are available during the off-term so the setup should be ideal.

This plant was designed by the engineering office of Clyde C. Kennedy, San Francisco, Calif. The work is under the jurisdiction of the University of California, Division of Architecture and Engineering, with Robert J. Evans, supervising architect, and Thos. J. Janes, engineer.

Contractor on the work is F. J. Early Co., Oakland, Calif., under a $767,500 lump sum bid.

Notes on Legal Decisions

Summaries of decisions relating to construction prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phrases of Construction Contracts (McGraw-Hill)

Ownership of Plans

Where an architect prepared plans and specifications for a client for a certain consideration, such plans, if valuable as property after their publication, belong to the client and not to the architect.[1]

In this case the architect was employed to prepare plans and specifications and after this was done they were filed with the local building department. Later, another party came to him and asked him how much he would charge for a duplicate set of the plans and specifications. When the architect stated the price that he would charge, the other party told him that he could get the work done for a much lesser amount. The parties could not come to any agreement and their negotiations ended. Subsequently the other party had some one else prepare plans and specifications for a residence which conformed substantially with that originally planned by plaintiff architect.

The architect then brought the action to recover the reasonable value of the plans, claiming that they were copies of the original plans and specifications filed by him with the building department. As has been indicated above, the court held that the architect was not entitled to recover as the plans and specifications were held to be the property of the client for whom they were prepared.

In another case,[2] an action was brought by an architect to recover for the value of services rendered by him in preparing plans for a hotel to be erected over railroad tunnels and tracks, which plans were delivered to defendants during the course of negotiations between them and the architect whereby the latter hoped to secure the contract. The court denied architect a recovery, holding that the evidence did not show that there was such substantial copying or use of plaintiff's plans as to show an appropriation thereof, and that there was no basis to the claim of architect that his method of distributing weight was original as it was well known to architects and engineers practicing those professions.

As long as the physical plans remain in the architect's possession, they constitute personal property, and a person not entitled to them may not take them from him or use them without his consent. With respect to the idea itself, however, where it is not protected by patent or copyright, it has been said that there is no intrinsic property in the architect's design, or any exclusive right in the design or the reproduction. Where the architect has prepared plans, superintended construction, and been paid for his work, the owner of the building is entitled to the plans.[3]

Some of the standard forms of contract between the architect and owner provide specifically that: "Drawings and specifications as instruments of service are the property of the architect whether the work for which they were made be executed or not".

(1) Wright v. Eisle, 83 N. Y. S. 887, 86 App. Div. 256.
(2) Larkin v. Pennsylvania R. Co., 125 Misc. 238, 210 N. Y. S. 216, affirmed 216 App. Div. 832, 213 N. Y. S. 216, affirmed 245 N. Y. 578, 157 N. E. 864.
(3) 3 Am. Jur. P. 1003 and cases there cited.

Oral Modification of Contracts

In the absence of a statute prohibiting the oral modification of contracts, a written contract containing a provision forbidding oral modification thereof, may be modified or rescinded by oral agreement between the parties.[1]

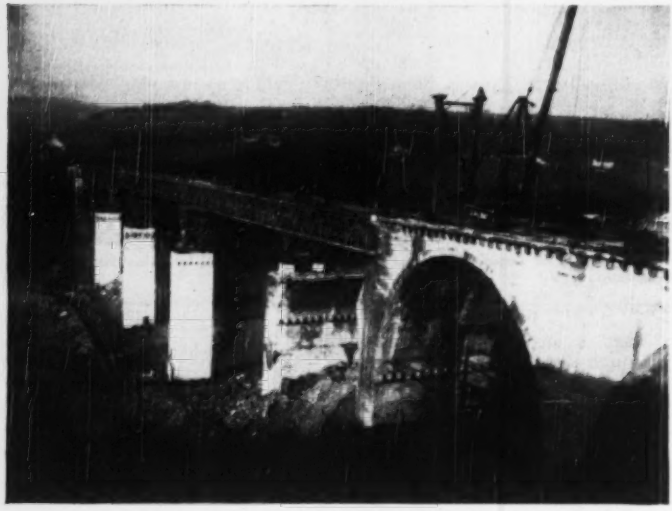
(1) Plank v. Schiffer, 85 F. Supp. 397, (U. S. District Court of Penn., July 28, 1949.)

Contracts with Municipalities

A municipal corporation cannot be legally bound by the act of its agent, unless such act is expressly authorized or is necessarily implied from the authority conferred.[1]

(1) Frank Staraio & Co. v. Boro of Lodi, 67A. 2nd 897.

DEVELOPMENTS ABROAD



Autobahn Bridge Restored—The old piers of the masonry arch bridge that carried the Frankfurt-Cologne autobahn across the Wiebach Valley near Neustadt-Wied now support a new steel superstructure on 6 of the 10 spans. Triangular steel bents are used on top of the piers (in lieu of building them up with masonry) to place the new deck at the level of the old—182 ft. above the valley floor. The Germans will open the rebuilt bridge to traffic this month. (Wide World photo)

Iranian railways are being further extended

Railway construction in Iran is being devoted to extension of existing lines from Tehran to Meshed on the west and to Tabriz on the east. At present, 15,000 men are engaged in these projects, which are to be completed in three years. The work is a part of an overall program of Iranian reconstruction (ENR Nov. 3, 1949, p 34).

According to a report issued recently by the Transportation and Communications branch of the U. S. Commerce Department, service is available now only from Tehran to Sharud, in the western desert and Mianeh to the northeast.

Almost 150-mi of the 310-mi Sharud-Meshed link are ready for track laying, while partial grading and ballasting has been completed for the remainder. No section of the Mianeh-Tabriz line is yet ready for track laying, although there has been a good deal of grading on this 186-mi link.

The Plan Organization, which is directing Iran's Seven Year Plan of Economic Development, has allocated about $13,125,000 from its funds for construction of the east-west lines. Of the funds available for the Sharud-Meshed line, about $5,312,000 is reserved for the purchase of 93 miles of rail and accessories, and about $937,000 for construction costs. The entire appropriation for the Mianeh-Tabriz line is for construction. This line, less advanced than the other, will be more costly owing to mountainous terrain and the need to construct several long tunnels.

About 15,000 workers are employed on the new rail construction. Plans call for the completion of the two lines in three years.

New roads for Turkey

Nearly $24,000,000 will be spent in improving existing roads and constructing new highways in Turkey in 1950. This is more than half of the $46,000,000 appropriated for public works in the Turkish budget for this year. It represents 10 percent of the total budget, and will be supplemented by $18,500,000 worth of road construction equipment and materials to be provided by the United States.

Minister of Public Works Sevket Adalan has told Parliament that delivery is expected this month of materials worth $5,000,000. These items make up the first order purchased with aid funds.

Six large repair and maintenance garages for American-supplied highway construction equipment, plus thirty smaller workshops, will be in full operation by the end of 1950 at thirty-six strategically located points in Turkey.

Authorization for irrigation works totaling more than $136,000,000 has been voted by the National Assembly. The Ministry of Public Works will spend that amount in five years.

Sydney Harbor bridge

The department of main roads of New South Wales will invite bids for the construction of a new bridge to replace the existing bascule bridge at the Spit, in the Sydney harbor area. That timber bridge is 26 years old.

The new bridge will be a substantial steel structure, with a length of 745 ft, a vehicular road 44 ft wide with two 5-ft pathways. It will be inclined at a uniform grade of 2¾ percent. Clearance for minor vessels will be provided by the fixed spans, while the center opening span of single-leaf bascule type will give unlimited vertical clearance and a horizontal clearance of 80 ft.

Foreign Briefs

Famous Avenue Rebuilt—In Mexico City, Paseo de la Reforma, one of the most attractive avenues in the world, first laid out by the Emperor Maximilian in 1865 to link his Chapultepec palace with the center of the city, is being made into a 6-lane expressway with two 2-lane local roads paralleling it on each side. The work, to be completed this year, will cost about $1,250,000. With this improvement, also the 10-mile Insurgentes Boulevard, cutting diagonally across the Paseo, and the recently-completed Chapultepec crosstown expressway, Mexico City has done much to speed intra-city traffic.

Big African Dam—A contract for the building of the Owen Falls Dam in Uganda, Africa, has been awarded to a group of British and Danish firms headed by Christiani and Nielsen. It is expected that four years will be required to complete the work, which will bring hydro-electric power to Uganda. The project is the first step in a 25-year scheme to improve agriculture in Egypt, to provide more food and raise the standard of living.

New Brazilian Road—A new 8-mile section of the Rio-Petropolis concrete highway, one of Brazil's few good highways, has been opened, reducing the old 43-mile route by about 2½ miles. The new section has two lanes and provision is made for two more lanes when needed. Cost of the new cut-off is about $3,000,000.

(*Continued on page 50*)

WATER BY THE PAIL IS SELDOM WASTED!

NEITHER IS WATER IN A

FULLY METERED SYSTEM

It's hard work pumping and toting water by hand. That's why in rural areas water is seldom wasted. Country folk can get along very nicely on 20 gallons a day per person. But make water available at the turn of a tap and people will use all they like—much more than necessary in fact, *unless it is metered.*

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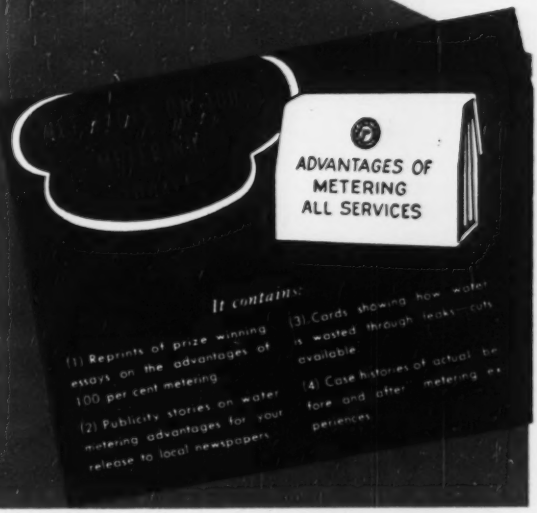
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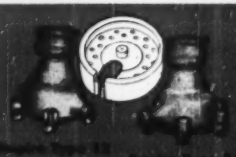
(2) Publicity stories on water metering advantages for your release to local newspapers
(3) Cards showing how water is wasted through leaky cuts available
(4) Case histories of actual before and after metering experiences



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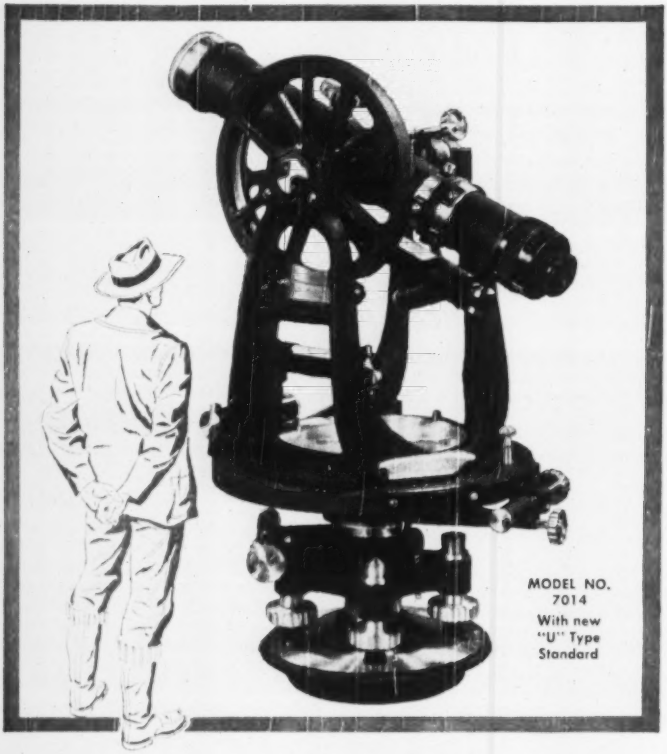

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DAVID WHITE COMPANY

We offer complete, prompt repair service on all makes of instruments — levels, transits, theodolites, etc.

(Continued from page 48)

Foreign Briefs

Drainage System—The Puerto Rico Planning Board has approved a drainage system project for Cano de Tubarones, Arecibo, to cost $1,500,000. About 5,600 acres will be made more productive. The land will be reclaimed for sugar cane cultivation, and healthfulness improved.

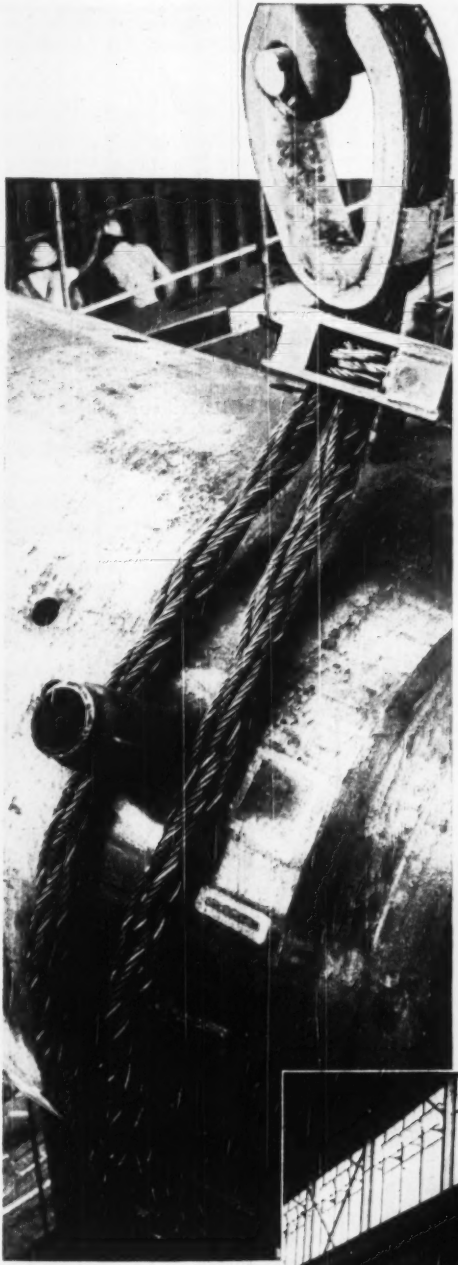
New Plan for Bogata—This month, town-planners LeCorbusier, Wiener and Sert will begin work on a new plan for the city of Bogata, Colombia. One of the features will be a new central railroad station. A site has been chosen and studies are being made.

Puerto Rican Imports—Dollar purchases of building materials by Puerto Rico from the United States in 1949 fell well below the peak of $24,500,000 reached in 1948 but are still well ahead of any prewar year total, according to the Puerto Rico Trade Council. During the first nine months of 1949, shipments were $12,000,000 or at the rate of $16,000,000 for the year as a whole. Among the larger items were southern pine, Douglas fir, iron and steel sheets, iron and steel bars, and paints and enamels.

Mexican Aqueduct—An allotment of $3,500,000 has been made to complete the main work on the aqueduct to bring potable water from the Lerma River to Mexico City. Eduardo Molina, chief engineer, and his assistants, A. del Castillo and Fausto Buenfil, have just visited the United States to study the waterproofing of similar works. The American Water Works Association assigned Malcolm Pirnie of New York to assist them. More than half of this year's $25,000,000 budget for the Federal District will be spent for public works.

French Chemical Plant—The Economic Cooperation Administration has approved a project to build a chemical plant at L'Etang de Berre, France, for La Societe Naphtachimie. Products will be raw materials for plastics, synthetic fabrics, varnishes, lacquers, and photographic supplies. Total cost of the project is $13,853,000, including $853,000 in ECA financing to cover American engineering fees and special equipment to be bought in the U. S.

Less Mexican Construction—Mexico's building construction boom that began in 1935 is about over, according to the Ministry of National Economy. Important investments are now turning to industry, agriculture and business, while many fine new buildings are begging for tenants.



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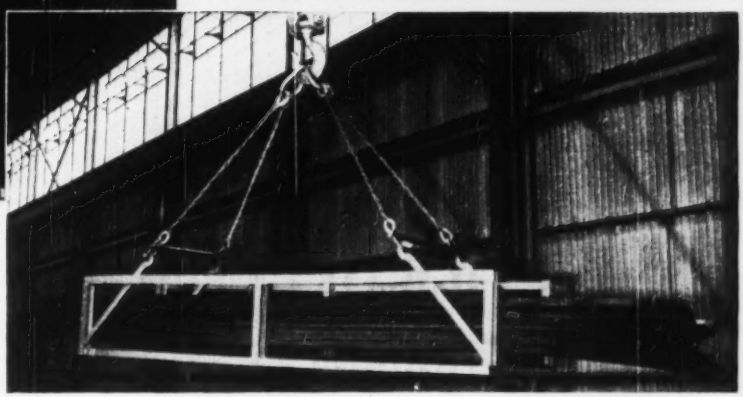

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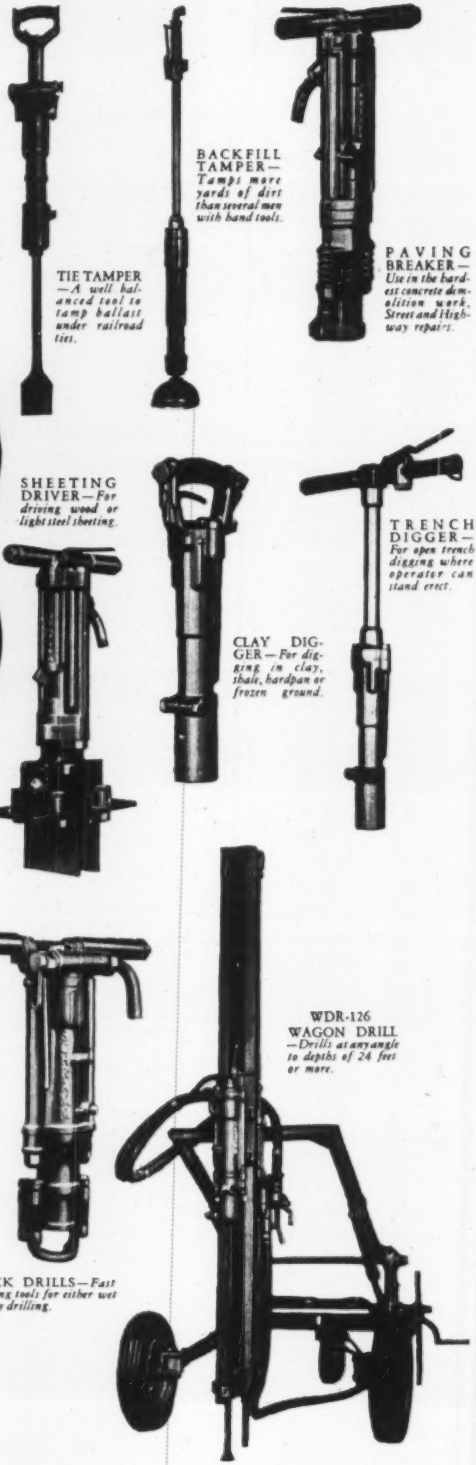

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MUNICIPAL AFFAIRS

Important projects planned for 3 cities

Extensive new housing planned for St. Louis

The St. Louis Housing Authority has been told by the Federal Housing Administration to go ahead and develop detailed plans for its proposed $25,000,000 low-rent public housing project, the fouth under consideration. The city wants to develop 2,490 federally subsidized low-cost units and 750 privately financed units in an 180-acre tract bounded by Eighteenth Street and Jefferson, Franklin and Cass Avenues.

Mayor Darst and other city officials have received the green light to spend $172,000 of a $780,000 federal loan for planning the housing facility. This will give the federal government a firm cost figure on which it can make commitments for financing the project. It is expected that the city and the federal government will share the eventual cost, with the amounts to be determined later after the plans are more fully developed.

The city's plan for the project calls for the initial construction of multiple-story, low-rent buildings in the area. Three stages of construction are planned for the federally-subsidized housing units. The first will include 1,000 units; the second, 680, and the third, 810.

Big road, bridge project mapped for Tulsa, Okla.

Proposals for a multi-million dollar urban highway improvement for Tulsa, Okla., including a bridge at Fifty-first Street, are being prepared for submission to the Bureau of Public Roads.

Mayor Roy Lundy says that city engineers are preparing right-of-way maps and appraisers have been asked to prepare reports on property required. The mayor has cooperated with Governor Roy J. Turner and the state highway commission in mapping the project. He says that the recent annexation of a southside area, which brought into the corporate limits areas south of Fifty-first Street east and west of the Arkansas River, qualifiies the project for urban aid.

Although full details of the proposal have not yet been announced, it is understood a double-roadway bridge over the Arkansas River at Fifty-first Street, to cost more than $1,500,000, is involved. Plans have reached the stage that approval by federal authorities of the over-all route would find the city and state ready for the immediate construction of the bridge, which would be more than 2,000 ft. long with divided roadways over 24 ft. wide.

Bids to be asked soon for Fort Worth's floodway

Plans for an extensive floodway project on the Trinity River at Fort Worth, Tex., have been approved by the Chief of Engineers, it is announced by Lt. Col. Ellsworth I. Davis, Galveston district engineer, and Col. Louis W. Prentiss, division engineer, Corps of Engineers.

It is expected that the government will advertise soon for bids on channel and levee construction. Excavation of the channel will call for the removal of about 5,750,000 cu yd of material. Bridges at Fourth Street, Cold Springs Road and Twelfth Street will be removed.

The West Seventh Street bridge will be extended to the west to provide an adequate opening for the passage of floodwater. The lower Rock Island R.R. and the Texas & Pacific R.R. bridges will be altered by removing timber trestle work and replacing it with girder spans. Some work will also be done on Sycamore Creek.

Lt. Col. Wm. J. Penly, officer in charge of the Fort Worth sub-office, will supervise construction. C. M. Thulin, director of public works of Fort Worth, says that the total cost of the project will be around $6,000,000.

Big RFC loan approved for Port of Savannah

Approval of a $4,500,000 RFC loan at 4% interest for the improvement of the state port of Savannah, Ga., has been announced by James D. Robinson, chairman of the Georgia Ports Authority.

The loan, which will be self-liquidating through income received by dockage fees, wharfage rentals, and warehouse operations and rentals, will be subject to legal clarification by the Georgia Supreme Court.

Present plans call for construction of a new pier 2,130 ft. long to accommodate four large ocean-going carriers at one time. There will also be storage sheds and new railroad spur tracks.

Governor Herman Talmadge said the state's revenue from the port will be increased considerably because of the installation of modern cotton compresses, and that one of the greatest needs is the construction of large grain elevators to serve the state's rapidly-expanding livestock industry.

Municipal Briefs

Minimum Street Width—The board of public works, Indianapolis, Ind., has proposed a 36-foot minimum width for new streets in that city, as well as improvement of existing streets, though exceptions will be granted in cases where traffic is light.

Moving Sidewalks Are Proposed—Looking into the future, Harold Von Thaden, vice-president of Hewitt-Robins, Inc., recently told a group of engineers, "I believe that in our lifetime we will see the shuttle trains between Grand Central and Times Square in New York City replaced by a moving sidewalk that will carry passengers quicly and safely between the two terminals. Furthermore, there's no reason why a connecting link could not be added to bring the Pennsylvania R.R. station into the circuit."

Uniform Building Code—With 82 percent of the suburbs of Cleveland, Ohio, having agreed to the Regional Planning Commission's plan for a uniform building code, preliminary work on drafting the measure is now starting. Cost of setting up the code is estimated at $24,000, to be prorated among the participating suburbs on the basis of their assessed valuations and the value of their building permits in recent years.

Quebec 1950 Public Works—The city of Quebec, Canada, Edward Hamel, engineer, is planning a total of $15,-817,00 worth of public works for this year, including the renovation of Dufferin Terrace and the Citadel Promenade, construction of water mains and sewers; and canalization of the St. Charles and Lairet rivers.

To End River Pollution—In Elkhart, Ind., the first phase of a $4,000,000 project to end stream pollution in the St. Joseph River has been approved by the city council, which authorized a $500,000 general obligation bond issue to finance revamping of the sewer system. The rest of the project will be financed later by a revenue bond issue.

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Sewerage and Water Supply

On Feb. 1, about 25,000 new citizens were added to the population of Memphis, Tenn., by the annexation of East Memphis. As a result, a 9-mi backbone of big sewer main from which scores of miles of smaller pipe will radiate to thousands of homes in that area is planned for construction this year at a cost of about $1,400,000.

This big development highlights the sewage and water works construction news of the week. Items from a number of other cities and areas follow.

Cleveland, Ohio—Mayor Burke has announced plans to spend $15,000,000 during 1950 on capital improvements. Included in an early bond sale will be $2,500,000 of sewage disposal bonds. Among the jobs to be done with this money are a $722,000 lower level sewer along the Cuyahoga River, a Pratt Ave. relief sewer for $180,000, and the Brookpark Road sewer for the new Ford plant for $225,000. For the Southerly sewage disposal plant expansion, $3,000,000 will be set aside this year. Included in the water expansion program is $5,000,000 for 50 new mains, $700,000 to enlarge the Division Street filtration plant for the West Side and $250,000 for a new 1,000,000-gal. reservoir in Solon.

Dallas, Tex.—From a sale of municipal bonds the city will have $3,200,000 to use for sanitary sewers and $3,000,000 for water system improvements.

Columbus, Ohio.—The city is preparing to raise its water rates substantially to finance a $10,000,000 addition to its water system to double the present storage and treatment facilities. Among the major items will be Hoover Dam on Big Walnut Creek to impound 25 billion gallons.

Indiana—Many Indiana cities are moving to solve their sanitation problems. South Bend plans to spend $6,000,000 on its sewers and sanitation plant. Already work has started on $1,000,000 worth of interceptor sewers financed by general obligation bonds. Evansville is planning to spend $7,936,000 on interceptor sewers, two treatment plants and garbage disposal equipment. So far, Indianapolis has announced plans for about $4,000,000 of sewer construction. Other cities with important sewer projects are Greencastle, Washington, Liberty, Rushville, Sheridan, Warsaw, and Elkhart.

Akron, Ohio—To prevent sewer overloading, the city commission is considering a regulatory ordinance which would affect future installation of air conditioning and refrigeration units in the downtown district. It would control the discharge of unpolluted water into storm and sanitary sewers. Legislation to put a $5,000,000 bond issue for sewer improvements on the November ballot has been requested by the city council's special committee investigating the problem.

Toledo, Ohio—A 5-year sewer construction program to cost $5,075,000, including $4,070,000 in assessments on property owners, has been proposed by City Manager Arnold V. Finch.

Pasadena, Tex.—Plans are being prepared for doubling the capacity of the local sewage treatment plant. It is expected that bids will be taken on the project this month.

Redding, Calif.—This city is having prepared an ordinance which would make the disposal of oil, chemical and other harmful wastes into the city sewer system a misdemeanor. This step was taken after the dumping of lubricating oil into the system interfered with the operation of the city's new sewage disposal plant.

Batavia, N. Y.—Mayor J. L. Perkins says that the city will not build a new sewage disposal plant but will revamp the existing one. The first step will be the construction of a new pumping station.

Bedford, Va.—The town council has accepted a plan calling for expenditure of $403,500 for a sewage disposal system. A survey and general plan by R. Stuart Rover and Associates, of Richmond, have been accepted.

Windsor Ont.—On a 5-year plan this city has voted funds for a $2,000,000 water works expansion and $4,400,000 for sewers.

Tallahassee, Fla.—A new sewage disposal system is now in operation in Florida's capital. The new plant was built with city labor, supervised by H. B. Seymour of Lakeland. City Manager Malcolm Yancey estimates it will cost an additional $300,000 to finish the project. Still needed are an aeration tank, final clarifier, two digesters, and a control station.

Endwell, N. Y.—The proposed $1,900,000 sewer system can be built without immediate construction of a disposal plant, which can be postponed for a limited time according to the state health authorities.

San Angelo, Tex.—On Jan. 27, this city voted a $7,500,000 revenue bond issue to finance the buying and expansion of a municipal water distribution system.

Indianapolis, Ind.—The works board has selected Warren & Van Praag, Inc., of Decatur, Ill., and Chas. W. Cole & Son, of South Bend, Ind., to plan and design additional sewers in Indianapolis, Ind.

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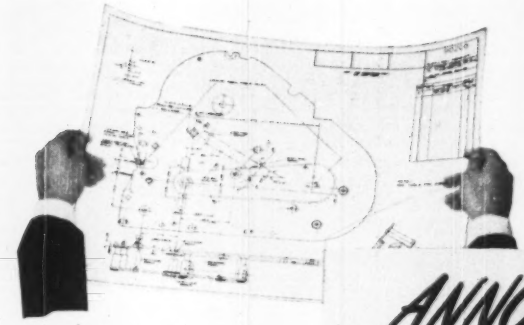

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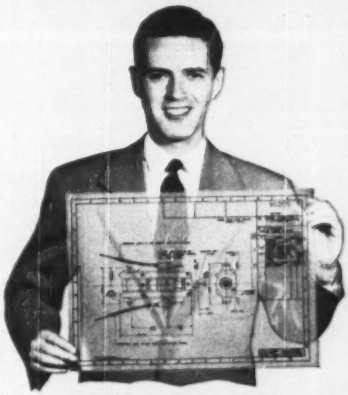

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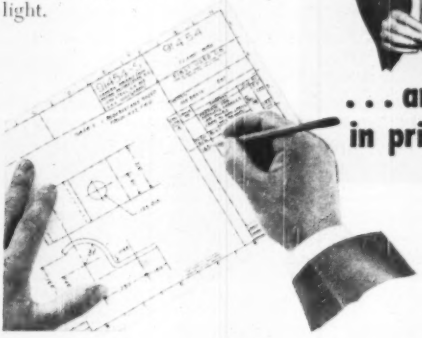

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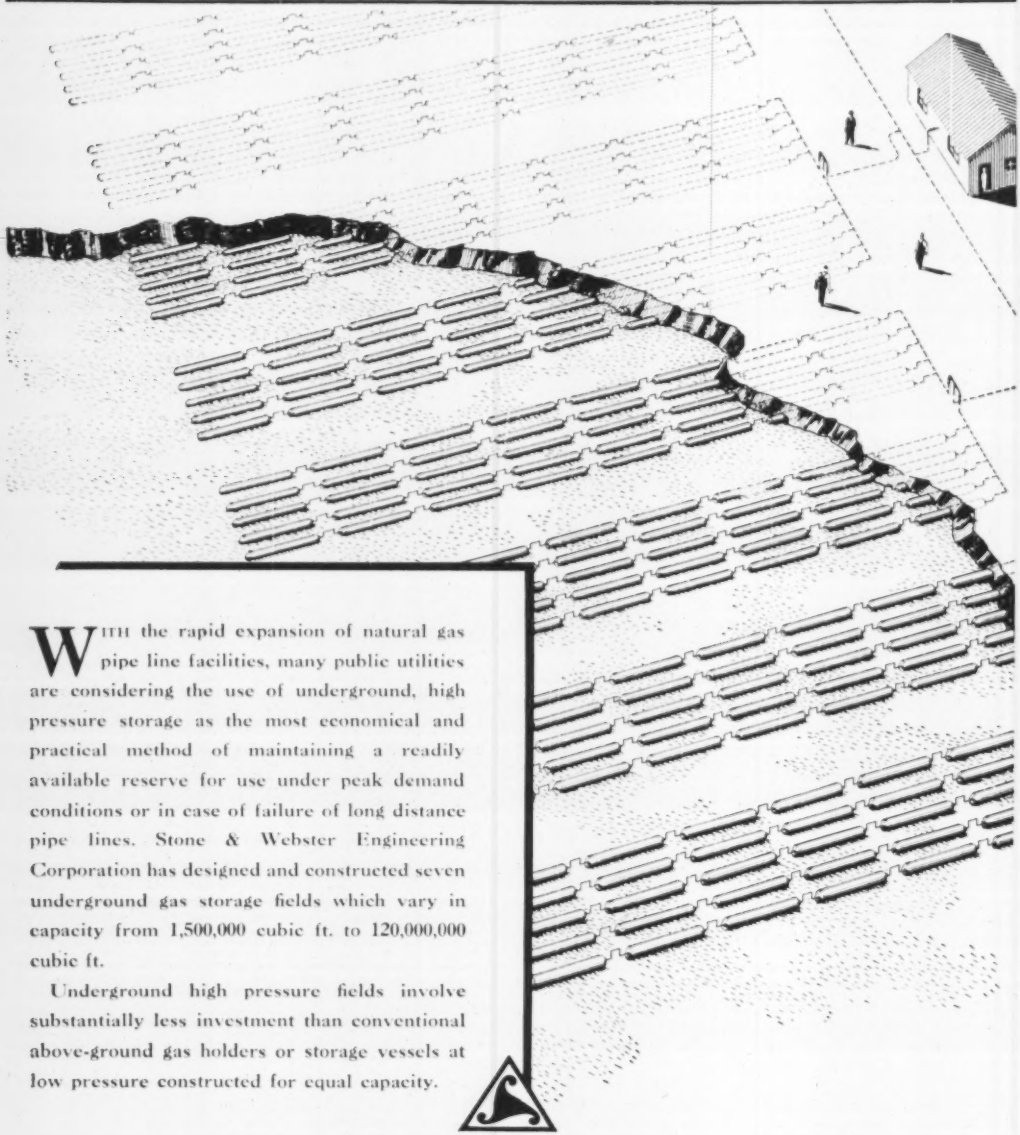

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MEN AND JOBS

Alfred Brahdy, head of the designs division of the N. Y. City Board of Transportation, has been recommended by a committee of the Municipal Engineers' Society for the award of the 1948 prize of the society for "the most meritorious paper in promoting engineering knowledge." The paper outlined the engineering investigations and decisions that had to be made before proceeding with the design of bus garages and trolley coach depots for housing, and maintaining buses and trolley coaches operated by the Board of Transportation. Mr. Brahdy obtained a B.S. degree from Cooper Union in 1908 and C.E. in 1912. He was appointed to the Rapid Transit Commission in 1907 and has continued in the transit field since.

Two Dayton, Ohio, engineers have been honored by the Ohio Section of the American Waterworks Association, **W. W. Morehouse,** city water director, received the George W. Fuller award given annually to the section's leading person in the profession. **Myron Tatlock** of Ralph Woolpert Co., was given the Wendell L. LaDue award for 20 years meritorious service in the waterworks engineering field.

Edward Hopkins, formerly with the Corps of Engineers, has been appointed city engineer at Kennewick, Wash.

Edward C. Suman has been named water works engineer for the village of West Alexandria, Ohio.

Arthur D. Weston, who recently retired as director and chief sanitary engineer of the engineering division of the Massachusetts Department of Public Health, has joined Charles A. Maguire & Associates, engineers, Boston and Providence, R. I. He will be director of water supply, sewage disposal and sanitary projects.

Stanley T. Barker has been provisionally appointed by State Health Commissioner Herman E. Hilleboe as assistant director of the Bureau of Environmental Sanitation of the New York State Health Department. He joined the department in 1936 and has served in both the Water and the Sewerage & Wastes Sections, his most recent assignment having been as chief of the latter section. He is a garduate of both Harvard and of Harvard Engineering School and prior to entering New York State service was a sanitary engineer with the Sanitary District of Chicago, with the Illinois State Department of Public Health, and with consulting engineering firms working in both the eastern portion of the United States and also in Latin America.

Martin H. Blote has been named acting superintendent of the Central Valley Project in preparation for CVP's operational phase. Transfer of Sacramento River waters into the San Joaquin valley via the Delta-Mendota Canal has been set for July, 1951, and this transfer will pave the way for full coordinated operation of the dams, canals, power plants, transmission lines and pumping plants. Mr. Blote joined the Bureau of Reclamation in 1944 and has headed the irrigation operations division. For 24 years he was on the staff of the California state engineer, participating in the original studies for the state water plan and later taking charge of water conservation work. Before that he was an engineer on San Francisco's Hetch Hetchy water project.

G. E. Flower has been appointed commissioner of sewage disposal in the Department of Public Utilities, Cleveland, Ohio, succeeding Joseph W. Ellms, who died Feb. 7. Mr. Flower attended Ohio State University and the South Dakota School of Mines. He had two years experience as chemist in operation of the Akron, Ohio, sewage testing unit and the Cleveland water testing unit. He did three years engineering work on the construction of Cleveland's Division Ave. filtration plant, and eight years in the laying of large water mains for Cleveland. For 21 years he was superintendent of the Cleveland Southerly Sewage treatment plant.

Dames and Moore, foundation and soil mechanics engineers, have moved their office to 140 Cedar St., New York 6, N. Y.

J. W. Courter, district bridge engineer with the Bureau of Public Roads office in Austin, Tex., has been selected to succeed **W. C. Peterson** as division construction and maintenance engineer with the bureau's division office in Ft. Worth. Peterson will move to Washington, D. C., to take over as chief of the construction branch of the bureau's division of construction and maintenance. Mr. Courter has been with the bureau for 18 years.

The retirement of **Alfonso H. Tuttle,** Helena, Mont. who has served for the last 11 years as district engineer in charge of surface water investigations in Montana for the U. S. Geological Survey is announced. He is succeeded by **Frank Stermitz,** a Montana state college graduate, who has had 19 years service with the survey in Minnesota, Washington, and Montana. Mr. Tuttle began with the survey in 1911 in Washington, D. C. Nearly all of his service has been in the West, including Oregon and Washington, as well as 33 years in Montana.

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Richard A. Haber, of Dover, Del., has been named Kent County division engineer of the Delaware State Highway Department. A former design engineer in the department, he succeeds **John B. Carson.** A civil engineering graduate of the University of Delaware, Mr. Haber has served for 12 years in the department.

William E. Hallauer, former assistant business manager of the Toledo, Ohio, board of education, has been named assistant superintendent of schools for business, succeeding the late Russell S. Wenzlau. Mr. Hallauer is a graduate of the University of Illinois, and joined the Toledo school system in 1922, first as a structural draftsman, becoming a structural engineer in 1923, superintendent of buildings in 1941, and assistant business manager in 1949.

The city council of Sierra Madre, Calif., has appointed **Harry M. Shatto,** civil engineer, director of public works and city engineer, succeeding **City Engineer William Taye,** resigned.

James L. Kehoe has resumed the practice of consulting engineering at 4 Purdy Ave., Rye, N. Y., for highways, sewerage, foundations, incineration, water supply, city planning, traffic surveys, estimating, appraisals, and supervision of construction. Engaged by the Amtorg Trading Corp., in 1930 he was resident engineer in Moscow in connection with the first 5-year plan. During the war years he was administrative assistant, civil works, for the Navy Department.

Thane E. Brown has been appointed chief engineer of the Commission of Public Docks at Portland, Ore. He was chief design engineer on the new $2,000,000 dock at Terminal No. 1.

E. Gray Donald, formerly chief engineer, Quebec Power Co., has been named vice-president and chief engineer of Shawnigan Water and Power Co., Ltd., Montreal, Que.

The appointment of **William T. Brice** as secretary of the State Road Commission of West Virginia has been announced by Commissioner Ray Cavendish. In charge of the commission's public relations division since 1943, he will continue that work.

Peerless Construction Co. has removed its offices to the McGraw-Hill Building, 330 W. 42nd St., New York 18, N. Y.

Harold J. Flannery, city engineer of San Jose, Calif., has taken over the

office of city manager for 90 days only, to succeed **O. W. Campbell,** recently appointed city manager of San Diego, Calif. During the 90-day period, **Carol Leininger,** Mr. Flannery's assistant, will serve as city engineer.

Fred W. Watts, in charge of drainage for the Lucas County (Ohio) engineering department, has been named chief deputy engineer. With more than 30 years of experience in engineering, temporarily he will continue to handle drainage matters.

As a result of inactivation of the Army's Test Branch of the Engineer Research and Development Laboratories at Yuma, Ariz. **Lt. Col. Henry E. Helmboldt,** formerly executive officer there, has been transferred to Headquarters First Army, Governors Island, New York City, where he has been assigned as assistant army engineer in charge of repairs and utilities.

Richard S. Podolske, city engineer of Watertown, Wis., since 1938, has resigned to enter private engineering. **Vaso Bjelajac** of Portage, a graduate of the University of Wisconsin, succeeds him.

James Anderson has been appointed resident engineer at Prince George, B. C., for the Pacific Great Eastern Railway. He was previously with the B. C. Electric Railway Co. at its power development at Bridge River, and prior to that was with the C.N.R.

The consulting engineering practice of **Fred N. Severud** is being continued under the firm name of Severud-Elstad-Krueger, consulting engineers at 415 Lexington Ave., New York 17, N. Y. Joining with Mr. Severud are Eivind G. Elstad and Max Krueger.

H. B. Armour has been transferred to St. Paul, Minn., from Kansas City, Mo., as district engineer, Community Facilities Service, General Services Administration. He succeeds **John D. Argetsinger** who left to head a new office for CFS at Juneau, Alaska.

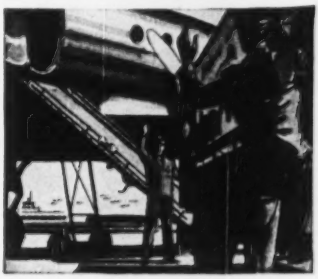
George R. Best of F. H. McGraw & Co. has been appointed manager of the engineering and construction firm's Pittsburgh office to succeed **Francis J. Tytus,** resigned. The company's engineering department has been transferred from Pittsburgh to Hartford. The Pittsburgh office will be an operational office. **Ted Page,** who spent nearly 13 years with Jones & Laughlin in the engineering and construction departments before joining the McGraw company in 1947, will serve as Bestʼs assistant.

(*Continued on page 64*)

Press breaks down — but $2.88 keeps editions rolling

Press broke down at 5 P.M., at end of evening edition's run. But this publisher got replacement parts in a hurry the same way he gets electros, mats, news photos —by Air Express. An 18-lb. carton traveled 500 miles, was delivered by 11 P.M. Shipping charge $2.88. Morning edition published as usual.

Air Express is the best air shipping buy to keep any business rolling, since low rates include door-to-door service. Answers your problems because Air Express is *fastest* and *most convenient.*



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Rates include pick-up and delivery door to door in all principal towns and cities

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2 TOURNAROCKERS

On Ontario Highway

move 3,000 yards a day on 2 mile round-trip haul

On a 10-mile relocation of provincial highway 17 between Sudbury and Sault Ste. Marie, Ontario, Muskoka Construction Co., Ltd. have found C Tournarockers their most effective hauling equipment for 125,000 yards of rock and 275,000 yards of mixed earth and sand. They replaced *15* two to four-ton trucks with *2* Tournarockers . . . teamed them with a 1½-yard shovel . . . and got the following results:

Average 3,000 Yards in 20-hour Day

On a one-mile, one-way haul, Muskoka's two high-speed Rockers moved 150 yards of mixed sand and rock an hour . . . 3,000 yards every 20-hour working day. Tournarockers had no trouble maintaining continuous operation over soft sandy haul road. Cycles were fast . . . because rig's big target area (11'2" x 7'10") speeded shovel loading, decreased spillage . . . short 90° turn and positive electric steering by push-button control permitted quick, easy maneuvering . . . powerful brakes with 4108 sq. in. of braking surface allowed high-speed hauling.

Faster, cleaner on dump

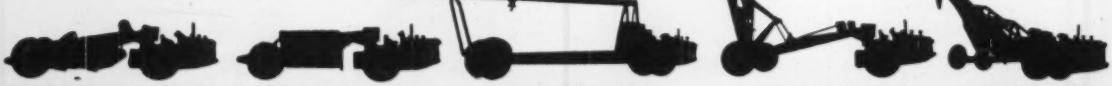
Dump, too, was fast . . . simple, electric hoist tilted the streamlined body in a few seconds. "Whatever rock we load into our Rockers unloads easily because of the rig's fine ejecting principle," says Mechanical Superintendent William C. Knight. "Have used our Tournarockers in sticky materials too, and had no trouble dumping the loads."

"Best Haulers a Contractor could buy"

Tournarocker's many advantages for big payloads and fast cycles gave Muskoka Company the lowest-cost answer to their hauling problem. That's why Knight says, "Tournarockers are the best hauling units any contractor could ever purchase."

You, too, can profitably cut haul costs and increase profits with Tournarockers. Get an analysis from your LeTourneau Distributor . . . NOW!

Profit Insurance—Tournarocker body is interchangeable behind Model C primemover with equipment below . . . interchangeability enables you to use your investment dollar the year around.



TOURNAPULL-SCRAPER TOURNAHOPPER TOURNAHAULER TOURNACRANE TOURNAMIXER

Send for complete facts to: **R. G. LeTOURNEAU, INC., Peoria, Illinois**

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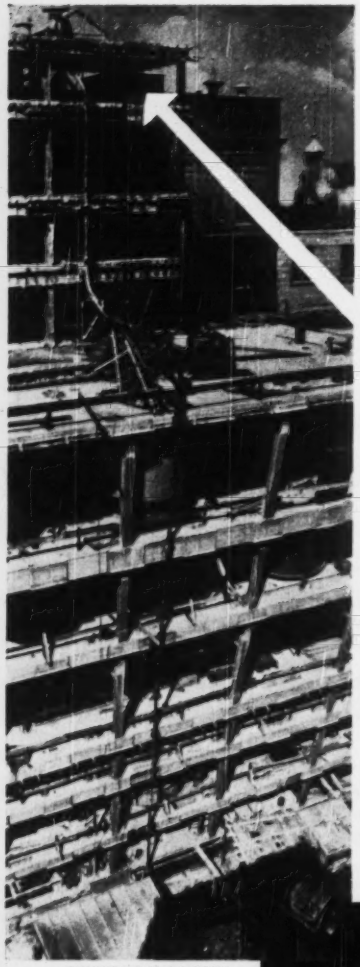
REPLACE 15 DUMP TRUCKS

On ¼-mile one-way haul, two Tournarockers keep 1½-yard shovel humping.

Big 11'2" x 7'10" top opening, plus low entry from rear, give shovel operator an easy-loading target. These 16-ton LeTourneau rock wagons maneuver in close, haul 150 yards of rock an hour.

LETOURNEAU PEORIA, ILLINOIS **TOURNAROCKERS**

TRACTION ADVANTAGES of A CRAWLER PLUS HIGH-SPEED on RUBBER



9 STORIES UP!

...A NEW RECORD FOR PUMPING CONCRETE

● *Powered by its Waukesha Engine*, a Rex 160 Pumpcrete recently broke all records in Milwaukee for concrete elevation and placement for this size concrete pump.

The concrete was lifted to 160 ft., nine stories from the ground to a roof pouring job on a brew house addition of Schlitz Brewing Co. Total pour, 5000 yds. with Waukesha power pushing it through the 6-in. pipe at an average of 18 cu. yds. per hour.

Contractors Edward Steigerwald & Sons, Inc., own and operate the Pumpcrete which was purchased from Hunter Tractor & Machinery Co., Milwaukee.

On every general construction job—Waukesha Industrial Power Units, 5 hp. to 475 hp., gasoline, gas, and Diesel.

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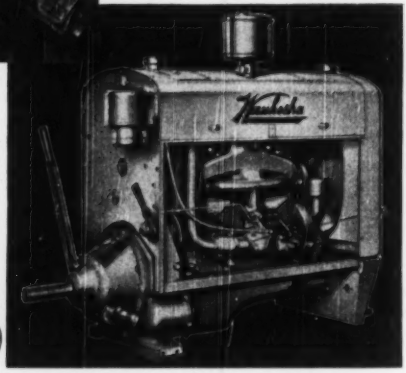
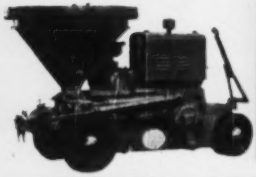


WAUKESHA Model XAHU—Gasoline Power Unit
powers the 160 Pumpcrete. 4-cyl., 3⅛-in. x 4½-in., 186 cu. in. displacement; 43 hp. max. at 2000 rpm.
Get Bulletin 1408.



WAUKESHA POWER

(Continued from page 61)

Fred Bowman in charge of erection of the all-aluminum bridge over the Saguenay River near Arvida, Que., for the Dominion Bridge Co., stands alongside the last section of the arch to be erected (ENR Nov. 17, '49 page 10).

These engineers keep construction equipment busy pulling ore out of Steep Rock Iron Mines, near Atikokan, Ont. They are, left to right, S. G. Hancock, assistant general superintendent, Bernard Vinciene, assistant chief engineer, and K. L. McRorie, chief engineer, all with Steep Rock Iron Mines, Ltd.

In the wilds of Maine, Karl Whitcomb, left, and W. Simpson are building Long Falls Dam, which will furnish supplementary storage and control for the Kennebec River. Whitcomb is resident engineer for NEPSCO Services Inc. who designed the dam for The Central Maine Power Co. Simpson is president of Yyman and Simpson Inc., Augusta, Me., contractor.

OBITUARY

Curt H. Eiffert, 66, until Jan. 1 last chief engineer and general manager for the Miami Conservancy District, Dayton, Ohio, died Feb. 3 in Dayton. He had been with the district for 35 years. During the period of construction of the flood control works he was division engineer in charge of river channel improvements at Hamilton, Ohio, and upon completion of the construction program he went to Dayton as maintenance engineer for the district. He was appointed chief engineer and general manager in 1925. Prior to his connection with the district, Mr. Eiffert was employed on engineering projects in the mid-west. He was graduated from Cornell College, Mt. Vernon, Iowa, in 1906.

Luther H. Gager, 96, oldest graduate of Yale University's Sheffield Scientific School, died at West Hartford, Conn., Feb. 16. He was graduated in 1875 and for many years he was a civil engineer in Palmer, Mass. Later he served as construction engineer for the Flint Building Construction Co. of Hartford, Conn.

Arthur H. Haigh, Sr., 75, formerly with the Pennsylvania State Highways, died Feb. 12 at Philadelphia, Pa. He was graduated from the University of London. He also attended Drexel Institute of Technology.

Francis J. Trapp, 53, civil engineer with the University of Kentucky research laboratory, died at Lexington, Ky., Feb. 7.

Joseph N. Wilson, 69, former city engineer of Kirkwood, Mo., died Feb. 11.

Malcolm J. Newman, 49, civil engineer employee of the U. S. district engineer's office at Galveston, Tex., died there Feb. 10.

Robert Bostwick, 60, assistant chief engineer in the Canadian National Railways construction department, Montreal, Que., was killed by an automobile Feb. 11. He had been with the CN for 35 years.

Marshall Edward Savage, 57, senior engineer for the Texas Highway Department in the Corsicana district, died there Feb. 7. He had worked for the department 29 years. He was graduated from Texas A. & M. College in 1918.

UNIVERSITY CUTS BUILDING COSTS . . .

WITH

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EXTERIOR AND INTERIOR VIEWS OF MECHANICAL AERONAUTICAL BUILDING UNIVERSITY OF MINNESOTA

• NEW $2,000,000 structure employs Smooth Ceilings System of flat slab construction with savings in cost, time and ceiling heights.

SPECIAL STEEL GRILLAGES used in this design are embedded in flat concrete slab. They can be used with structural steel, steel pipe or reinforced concrete columns. They eliminate flared column, caps, beams and drop panels and permit easy installation of ceiling hung equipment. Reduced concrete forming costs and construction time result in Building Cost Savings.

NEW booklet with typical installations and 4 page descriptive bulletin sent on request.

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REDUCE TAMPING COSTS!

USE THE CLECO NO. 5A AIR-OPERATED BACKFILL TAMPER

• Full power stroke of the piston gives deeper penetration and faster compaction.

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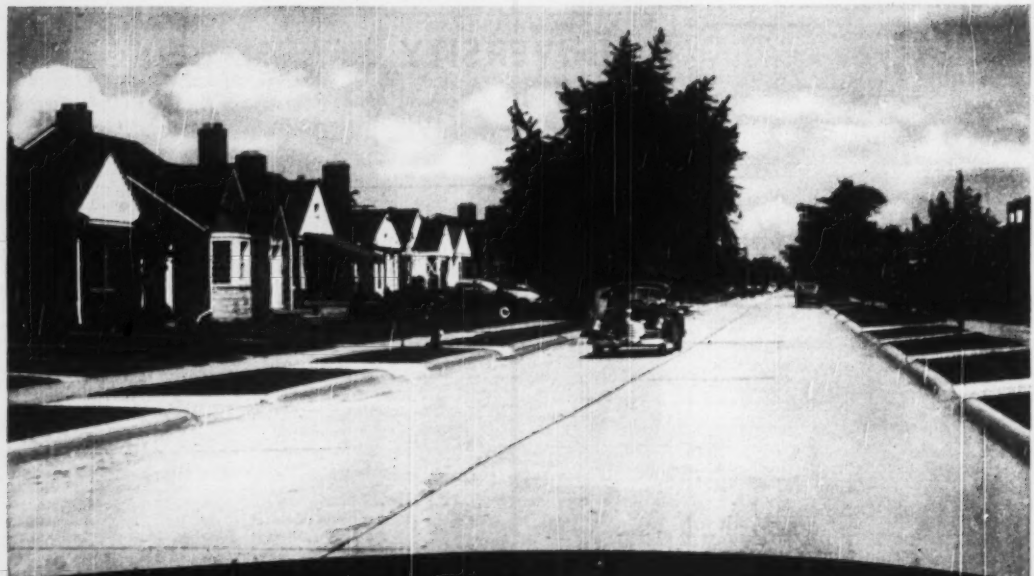
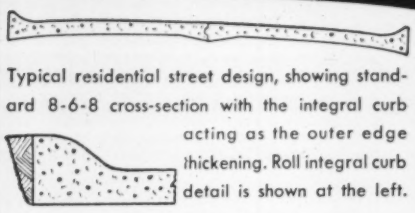


Detroit Doubling Its Yardage of CONCRETE Street Paving



Typical residential street design, showing standard 8-6-8 cross-section with the integral curb acting as the outer edge thickening. Roll integral curb detail is shown at the left.

DETROIT is carrying on one of the most ambitious concrete street paving programs any city ever has undertaken. Starting in 1946 with 275,407 sq.yd. of concrete paving, the program expanded into 622,176 sq.yd. in 1947 and then rose again to 1,129,740 sq.yd. in 1948 and 1,423,869 sq.yd. in 1949. The paving program in 1950 is expected to continue at the same rate of the past two years.

This will virtually double the 4,371,208 sq.yd. of concrete street pavement existing in Detroit in 1945 — an amount which had already placed Detroit among the top ten cities in concrete street yardage.

According to City Engineer George R. Thompson, Detroit chose concrete for this gigantic program of residential street paving because compared with other pavement suitable for prevailing conditions and types of traffic it was (1) lower in first cost, (2) lower in maintenance cost and (3) longer lived. These three features of concrete will give Detroiters true ***low-annual-cost*** pavement.

Detroit kept paving costs low in two ways. First, it advertised street projects individually but let them in groups having sufficient yardage to be attractive to contractors. Second, it employed street designs featuring well-balanced jointing arrangement and low-cost, roll-type integral curb.

For complete information on the design technique for modern city streets, write for a free copy of *"The Design of Concrete Pavements for Municipal Streets."* Distributed only in the United States and Canada.

PORTLAND CEMENT ASSOCIATION
DEPT. 3a-17, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS
A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

EDUCATION and RESEARCH

Structural engineering

Seventy-five Chicago-area engineers have enrolled for the first refresher course for structural engineers at the University of Illinois' Chicago Undergraduate Division. The classes, designed for engineers preparing for the state licensing examinations on March 23 and 24, are being given on the Navy Pier campus.

Plans are being made to repeat the course prior to the structural engineers' examination in September.

In charge of arrangements for the course are J. T. Rettaliata, dean of engineering at I.I.T., O. W. Eshbach, dean of admissions at Northwestern Technological Institute, and Frederick W. Trezise, dean of engineering at the U. of I. division. The course is being offered through the University of Illinois extension division.

Water hammer data

The saving of tons of steel in the construction of new pipe lines throughout the world is said to have been made possible by findings on "water hammer" phenomena just released by Northwestern University's Technological Institute. The new data are expected to reduce breakdowns, leaks, and damage to oil and gas pipe lines formerly caused by pressure-wave surges.

Professors Lewis H. Kessler and Merrill B. Gamet of Northwestern's civil engineering department have designed a "test bomb" for computing the bulk modulus of elasticity of various kinds of crude oils and gasolines from high pressures to low pressures and at temperatures from freezing to boiling. These figures, never before computed for the range of pressures and temperatures found in long pipe lines, will be available to all operators in the United States and to engineering organizations.

The Northwestern engineers explain that pressure-wave surges occur in all pipe lines when valves are closed too rapidly, and that surges may destroy valves, spring leaks in pipe joints, or even result in explosions from weak joints.

A series of tests on operating pipe lines accurately verified the conclusions based on the Northwestern data. Engineers now have a dependable basis for the installation of pipe lines and the operation of their valves. Since water hammer surges now can be computed and anticipated so that valves may be regulated to offset damaging effects. With the figures they have compiled, it is possible for engineers to design the correct thickness of metal required in large pipe lines without wasting steel.

The tests made by the Northwestern scientists were part of a research program of the Joint Surge Conference, which is jointly sponsored by Middle East Pipelines, Ltd, Trans-Arabian Pipe Line Co, and the Gulf-Shell Pipe Line.

Educational notes

Nationwide Engineer Survey—March 15, 1950, is the closing date for the nationwide survey of selected engineering personnel. The survey is being sponsored by the Engineers Joint Council for the U. S. Office of Naval Research. To date, over 60 percent of the 115,000 questionnaires sent to members of 18 national engineering societies have been answered. Eventually, they will be kept in Washington as a source file of the nation's key engineers and scientists. The facts gathered by the survey will be available to government agencies, private industrial, educational and professional society planning groups, and for other legitimate purposes. Those who have not yet answered the questionnaire are urged to do so before the deadline, so that they may be listed among engineering resources of the nation.

Student Faculty Rating—Students at Illinois Institute of Technology are grading their instructors on teaching methods, as a faculty rating survey is being conducted for the second consecutive year by the Interhonorary Council. The anonymous evaluations are for each teacher's confidential information. The college's 3,437 undergraduate day students are rating instructors on enthusiasm, knowledge of subject, clarity of explanations, preparation for class, and length of assignments. They are also informing the teacher of annoying mannerisms, exaggerated gestures, favoritisms, intolerance of other's opinion, and impatience.

To prepare for exam—A course for civil engineers in preparation for Part 3 of the New York State professional licensing examination is being sponsored by the Junior Branch, Metropolitan Section, American Society of Civil Engineers. Specializing in the civil engineering as well as economics problems of the examination's final part, the course is believed to be the first of its kind offered in the area. Many courses are offered on Parts 1 and 2 only. The 18 weekly sessions are scheduled to be held in the Engineering Societies Building, New York City.

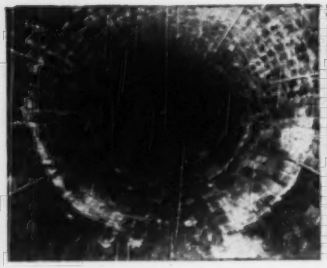
Demand for Engineers—According to Dean Morton O. Withey, of the college of engineering of the University of Wisconsin, it seems certain that the employment of civil engineers will be increased by government agencies, by industrial competition, by increased technical developments, and by the needs for applied research. He said the demand for engineers with specialized training for applied research in engineering already is revealed by the increase in engineering graduate enrollments. Wisconsin has more than 180 graduate students matriculated in engineering—twice the prewar graduate enrollment.

Research Roundtable—Policies to be followed and pitfalls to be avoided in developing a research program serving teachers, students, industry, and the state are outlined in the proceedings pamphlet of the Engineering College Research Council of the American Society for Engineering Education. Copies are available from John I. Mattill, Secretary, Room 7-204, MIT, Cambridge 39, Mass.

Engineering head retires

Prof Warren C. Taylor, chairman of the department of civil engineering of Union College, Schenectady, N. Y., and the oldest member of the faculty in point of service will retire in June after 40 years. A graduate of MIT in 1902, Professor Taylor first worked as a draftsman and engineer with several railroad and construction companies. Professor Taylor's successor will be associate Prof H. Gilbert Harlow, who received his master's degree in civil engineering at Harvard in 1940.

"GUNITE" RENEWS OLD BRICK SEWERS



These pictures show how we are rebuilding nearly four miles of combination sanitary and storm sewers at Bloomington, Illinois by lining them with mesh reinforced "GUNITE."

Erosion of mortar joints and dislodged bricks made many sections of these 65 year old sewers both dangerous and inefficient. The new "GUNITE" linings will restore them to greater than original strength and result in many more decades of useful service at a fraction of the cost of new sewers.

All work is done without opening streets. Sewer service is maintained by installing temporary flumes or bypassing through relief sewers.

This job and many other profitable uses of "GUNITE" are illustrated and described in our new 64-page General Bulletin A2400. Send for your free copy today.

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"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA. U.S.A.
MANUFACTURERS OF THE CEMENT GUN

DRILLING CONTRACTORS
DIAMOND AND SHOT CORE BORINGS—DRY SAMPLE BORINGS
Foundation Testing for Bridges, Dams and all Heavy Structures
Also
Manufacturers of Diamond and Shot Core Drills, Accessories and Equipment
SPRAGUE & HENWOOD, Inc.
Scranton, Pa. Dept. E, U. S. A.

MOTT Diamond Core Drilling Contractors
FOUNDATION TESTING
for
Bridges, Dams, Heavy Structures
PRESSURE GROUTING
MFR'S DIAMOND & SHOT CORE DRILLS, GROUT MIXING MACHINES, PACKERS AND GROUT PUMPS
MOTT CORE DRILLING CO.
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MacArthur
39 YEARS INSTALLING PILES
OF EVERY TYPE
CAST-IN-PLACE CONCRETE COMPOSITE
STEEL SECTIONAL PIPE TIMBER
SOIL AND ROCK EXPLORATION
MacARTHUR CONCRETE PILE CORPORATION
18 EAST 48th STREET, NEW YORK 17, N. Y.
BOSTON • CINCINNATI • NEW ORLEANS

ELECTIONS AND ACTIVITIES

William B. Pagano has been elected president of the Home Builders Association of Albany, N. Y. Other officers: vice-president, Leo P. Byrnes; secretary, James A. Rooney, and treasurer, Sidney A. Friedman. Mr. Pagano was elected national director with Clifford E. Picotte as alternate.

Webert E. Roubie has been elected president of the newly formed Jefferson-Lewis County Chapter of the New York State Society of Professional Engineers. Other officers: Roswell E. Brett, vice-president; Harold J. Besha, secretary; Harold R. Dwyer, treasurer; William T. Field and William C. Bassetts, directors.

M. Frank Wooten, Jr., of Charlotte has been elected president of the North Carolina chapter of the National Society of Professional Engineers. Other officers: Henry T. Gurley, Jr., of Burlington and W. F. Evans, Jr., of Wilmington, vice-presidents; John Gove of Chapel Hill, secretary, Robert G. Bourne of Raleigh, treasurer; and Robert B. Rice, of Raleigh, William H. Horne, Jr., of Warrenton, W. F. Freeman of High Point, and W. T. Harding, Jr., of Charlotte, directors.

Ohio Northern Chapter of Ohio Society of Professional Engineers has elected Gerald Clever, Findlay, as president; Russell Harvey, Mt. Victory, vice-president; Archie Hillery, Findlay, re-named secretary-treasurer; and A. J. Moon, Upper Sandusky, trustee.

Howard B. Kramer, formerly treasurer, has been elected president of the American Building Association of Washington, D. C., succeeding William C. Farmer, who was made board chairman. Other promotions, Bernard J. Coyle, assistant treasurer to treasurer; R. Lee Baxter, assistant treasurer to vice-president.

Donald B. Stabler of Harrisburg has been re-elected president of the Associated Pennsylvania Constructors. Others re-elected were: A. E. O'Brien, executive secretary; Earl J. Breneman, chairman, executive committee; and Wm. Taylor, vice-president.

T. R. Lovejoy, Des Moines contractors, has been elected president of the

UNIVERSAL SHIP-LAP Wall Coping . . .

. . . Reduces Construction Costs
. . . Adds distinction to all buildings

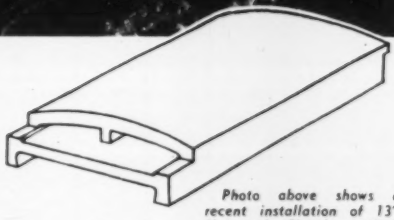

Photo above shows a recent installation of 13" Universal Ship-Lap Wall Coping, Glenwood Houses, New York City Housing Authority.

Below this is a drawing of Ship-Lap.

Every size and shape needed. Easy to install. Prompt shipment. Universal Ship-Lap Wall Coping reduces construction costs . . . adds distinction to large and small buildings. Important advantages of Universal Ship-Lap Coping: $2\frac{1}{2}$" Arch saves cost of one course of brick • Double protection from a double shell • Bottom of under shell provides perfect base • Overlapping joint construction makes it practically water-tight • Minimum mortar exposed. Joints flush with top of coping • Wide lap provides an ample base for mortar • Channels provide protection to minimize expansion and contraction • Patented key lock holds coping permanently • Made of finest de-aired vitrified clay. Salt-glazed or unglazed.

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Sewer Pipe (Concrete)
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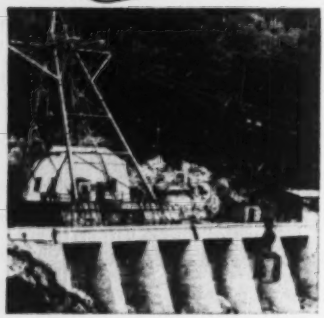

Illustration shows Sauerman Tautline Cableway working on huge Chartang Dam. Two identical machines with spans of 1146 ft., conveying speeds of 1300 f.p.m., handle all the materials going into this dam. Mixed concrete is handled in 8 cu. yd. dump buckets; other materials in skips and slings.

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Master Builders of Iowa. Other officers: Frederick W. Mast, Waterloo, treasurer and C. Glenn Walker, Fort Dodge, secretary. John N. Moen, Mason City, was re-elected vice-president. John Ringland, Des Moines, and Oscar F. Priester, Davenport, were elected directors.

Officers of the Nassau County chapter, N. Y. State Society of Professional Engineers, have been elected as follows: President, F. X. Marklin; vice-president, Geo. H. Peters; secretary, Walter J. Pope; financial secretary, Kurt Groepler; and treasurer, M. C. Baldwin.

Mark C. Culbreath is president of the Kansas City section, ASCE; J. Q. A. Greene and Reed McKinley, vice-presidents; W. L. Patterson, secretary-treasurer.

MAJOR MEETINGS

American Road Builders Association, annual meeting, including Pan-American Division, Netherland Plaza Hotel, Cincinnati, Ohio, March 6-9.

Mississippi Valley Conference of State Highway Department, Edgewater Beach Hotel, Chicago, Ill., March 9-11.

American Railway Engineering Association, Palmer House, Chicago, Ill., March 14-16.

Concrete Reinforcing Steel Institute, annual meeting, The Shamrock Hotel, Houston, Tex., March 20-25.

New Jersey Sewage Works Association, annual convention, Hotel Stacy-Trent, Trenton, N. J., March 22-24.

Highway Engineering Conference, University of Utah, Salt Lake City, March 29-31.

Canadian Section, American Water Works Association, General Brock Hotel, Niagara Falls, Ont., April 3-5.

New Jersey Society of Professional Engineers, Essex House, Newark, N. J., April 14-15.

Highway Transportation Congress, Mayflower Hotel, Washington, D. C., April 25-27.

American Society of Civil Engineers, spring meeting, Los Angeles, Calif., April 26-29.

Maryland-Delaware Water and Sewerage Association, Fort Cumberland Hotel, Cumberland, Md., April 27-28.

Third Inter-American Congress of Municipalities, New Orleans, La., May 2-5.

N. Y. State Society of Professional Engineers, Hotel Statler, New York City, May 4-6.

American Society of Civil Engineers, Pacific Northwest Conference, Winthrop Hotel, Tacoma, Wash., May 5-6.

U. S. Conference of Mayors, Waldorf-Astoria Hotel, New York City, May 11-13.

Florida Highway Conference, University of Florida, Gainesville, Fla., May 11-23.

American Water Works Association, annual conference, Convention Hall, Philadelphia, Pa., May 21-26.

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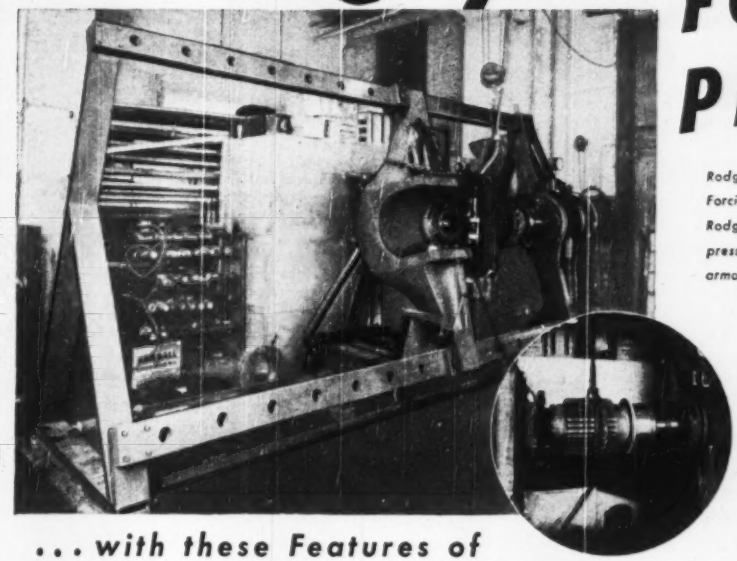
New Rodgers FORCING PRESSES



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Rodgers Versatile Forcing Presses are available in portable or stationary models—horizontal, vertical, 75° or 90° inclined—100 to 600 tons—with hand-operated or power-driven pumps. In this broad selection, you'll find the ideal press to meet your requirements.

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UNIT PRICES BID BY CONTRACTORS

Master sanitary sewer system, Tampa, Fla.

Continued from ENR 2/23/50

Unit prices on the 122 mgd pumping station and a primary sedimentation treatment plant designed for 36 mgd average annual flow are reported in this installment of prices bid on Tampa's master sewerage program. Prices on intercepting and trunk sewers were in ENR 2/2/50 and 2/23/50. Street and alley sewers and subaqueous river and channel crossing prices were reported 2/23/50.

Contracts totalling $3,235,377 were awarded on this first letting, which represents about 40% of the whole program. The next letting probably will be in March.

On both the pumping station and treatment plant, for which unit prices are shown here, excavation below elevation 0.00 is "very" wet, according to the contractor, and will be handled by well points.

Roy K. Van Camp is superintendent of public works, and Greeley and Hanson of Chicago are consulting engineers.

KRAUSE ST. PUMPING STA., (122 MGD) — $282,384

STRUCTURE

G1 (1) Lewis & McDowell, Inc., New York, N. Y. — 178,455*
(2) C. T. Dawkins — 188,769
(6) Carpenter Constr. Co. — 234,486

PUMPS (LUMP SUM)

G2 (1) Fairbanks Morse — $ 55,409*
(2) Economy Pumps, Inc., Div. of Hamilton Thomas Corp. — 56,890
(4) W. L. Hailey — 84,678

ELECTRICAL WORK

G3 (1) C. T. Dawkins — 44,135
(2) Tampa Armature — 48,520*
(4) W. L. Hailey — 62,200

KRAUSS ST. PUMPING STATION

ITEMS		QUANTITY	UNIT PRICES G1(1)	G1(2)
Excav., ea. abv El.0	cy	650	$ 1.00	$ 6.00
below El. 0, wet	cy	1,750	6.00	6.00
Excav., rock	cy	250	5.00	8.00
Steel piles	lf	300	3.00	11.10
Sel. fill, ct. rock	cy	25	5.00	6.00
shell	cy	25	5.00	2.75
limest. scr.	cy	25	5.00	6.00
Shtg, wood, lip	Mfbm	5	130.00	100.00
steel, lip	lb	5,000	0.10	0.10
Portland cement	bbl	1,200	3.50	4.80
Concrete: Cl. A	cy	5	50.00	60.00
" B	cy	500	40.00	55.50
" C	cy	275	20.00	26.85
" D	cy	25	10.00	26.85
Rubbed finish	sf	6,500	0.10	0.12
Joint prd. asph.	lf	50	0.50	0.50
Steel reinf.	lb	150,000	0.10	.095
St. & wrt. ir. misc.	lb	4,500	0.15	0.30
Iron castgs. misc.	lb	2,500	0.10	0.20
Floor gratings	sf	50	2.50	3.00
Stop logs	ls	—	1,590	720.00
Piping, outside	ls	—	1,460	5,000
Pipelines, ci	ls	—	6,000	5,200
Pipelines, wrt.	ls	—	1,000	750.00
Valves	ls	—	1,900	806.00
Sluice gates	ls	—	8,000	7,486
Plumbing	ls	—	3,200	4,369
Sump pump unit	ls	—	400.00	716.00
Equip., hoisting	ls	—	3,000	2,730
Equip., pumping i	ls	—	4,000	3,020
Butterfly valve	ls	—	10,000	11,522
Equip., vacm prime	ls	—	1,600	1,730
plant water	ls	—	2,000	1,812
Vent meter & reg.	ls	—	8,000	11,094
Water lev. indic.	ls	—	1,000	1,164
Archtl. wk.	ls	—	62,000	48,596
Equip., ventilatg.	ls	—	1,250	1,705
Equip., misc.	ls	—	300.00	360.00
Wires & conduits	ls	—	3,600	7,159
Switchgear	ls	—	36,580	33,673
Motor controls & wiring misc.	ls	—	1,065	2,730
Lighting	ls	—	2,890	4,958

SEWAGE TREATMENT PLANT, 36 MGD AV. ANNUAL FLOW — $473,822*

SLUDGE BEDS

K2 (1) C. H. Lawson — 106,061
(2) Lewis & McDowell — 119,745*
(8) Rust Engineering Co. — 185,950

TREATMENT PLANT

K3 (1) Lewis & McDowell — 308,739*
(2) Cone Bros. Contr. Co. — 331,688
(8) W. L. Hailey & Co., Inc. — 527,012

SLUDGE COLLECTOR (LUMP SUM)

L1 (1) Walker Process Equip. Inc. — 34,666
(2) Jeffrey Mfg. Co. — 36,365*
(4) American Well Works — 48,116

GRIT CHAMBER EQUIPMENT (all bids rejected) (lump sum)

L2 (1) Walker Process Equip. Inc. — 14,644
(2) Chain Belt Co. — 21,450
(3) Jeffrey Mfg. Co. — 22,540

SCREENING EQUIPMENT (LUMP SUM)

L3 (1) Chain Belt Co. — 8,973*
(2) Walker Process Equip. Inc. — 10,397
(4) American Well Works — 14,309

*Awarded contract * Does not include L-2; L-2 will be included in second group of bids, on remainder of sewage treatment plant, probably in March, 1950.

TREATMENT PLANT

ITEMS, SLUDGE BEDS		QUANTITY	UNIT PRICES K2(1)	K2(2)
Grading, gen.	cy	26,000	$ 0.30	$ 0.40
Excav., rock	cy	10	3.00	1.00
Sludge beds	ls	--	111,915	106,044

ITEMS, TREATMENT PLANT		QUANTITY	UNIT PRICES K3(1)	K3(2)
Excav., earth above El.0	cy	8,000	0.50	1.00
below El.0 wet	cy	9,000	4.00	1.50
Excav., rock	cy	25	3.00	1.00
Piles, wood	lf	53,000	0.50	0.70
Selected fill, crushed rock	cy	100	5.00	7.00
shell	cy	100	5.00	4.00
limest. scrgs.	cy	100	5.00	5.00
Shtg, wood, lip	Mfbm	5	100.00	180.00
steel, lip	lb	5,000	0.05	0.10
Bffls & stop logs	ls	--	5,000	3,500
Portland cement	bbl	5,500	3.50	4.00
Concrete: Cl A	cy	5	50.00	55.00
" B	cy	1,400	40.00	55.00
" C	cy	2,100	15.00	22.00
" D	cy	100	10.00	21.00
Rubbed finish	sf	12,500	0.10	0.20
Filler, asph. fiber sheet	sf	3,200	0.20	0.40
Joint, pour asph.	lf	1,000	0.10	0.40
Water stops, copr	lb	1,500	0.65	1.50
St reinf.	lb	625,000	0.10	0.10
St & wi, misc.	lb	35,000	0.50	0.40
Bronze, misc.	lb	500	1.00	2.00
Iron cast., "	lb	10,000	0.10	0.15
Floor gratings: 1"	sf	200	3.00	4.00
1½"	sf	80	4.00	6.00
Pipe rail, double line	lf	850	5.00	6.50
single	lf	480	4.00	6.00
Stanchions	ea	52	10.00	12.00
Br. masonry, misc.	cy	15	60.00	70.00
Pipelines, ci	ls	--	4,000	3,000
Pipelines, wr	ls	--	3,000	4,400
Underdrains	ls	--	1,500	1,500
Valvs & sl gates	ls	--	9,000	4,000
Equip., scum rem.	ls	--	7,000	4,500
Sl col mech., i	ls	--	8,439	3,900
Elect. conduit	ls	--	1,000	899.00

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It's exclusive with *Lufkin* . . . the Chrome-Clad satin finish that banishes disturbing glare . . . assures accurate measuring under all light conditions! Black markings stand out razor-sharp against the chrome white background . . . makes it easy to *See Right—Be Right!*

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5—Genuine leather case—rust resistant steel liner.
6—With two improved pattern detachable finger rings.
7—Superior roller throat, folding flush handle opened by push-pin.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

Ill., Arcola—B.A. 3/13—City Council, WW imprvs., incl. laying mains, constr. bldg., furnishing equip. for softening and filtering and installing equipment, $50,000.

Tex., Lake Jackson—Bids Asked—Dow Chemical Co., Freeport, c.i. water lines, facilities, $35,000.

LOW BIDDERS

Calif., Eureka—City, City Hall, Feb. 7, 500,000 gal. elevated steel water tank, from Chicago Bridge & Iron Co., 22 Battery St., San Francisco, $120,279. CD 1/20.

▲ N. Y., New York—Bd. Water Supply, 120 Wall St., Zone 5, Feb. 20, designs, construction and installation necessary to establish at Shaft 6 of Delaware Aqueduct, complete with all equip. and appurtenances and ready for use, an electrically- operated or a direct-connected Diesel-operated pumping plant capable of pumping 100 million gals. per day water from the Hudson River into the Delaware Aqueduct against a head of 600 ft. and chlorinating plant capable of satisfactory sterilizing the pumped water before it enters the aqueduct, together with suitable buildings for housing the plants and for operation of said plants for a period not to exceed 4 months subsequent to their completion near Chelsea, Town of Wappinger, Dutchess Co., from Baltimore Contractors, Inc., 711 S. Central Ave., Baltimore, Md., Electric $2,387,000; Diesel $3,018,000. McCollom & Murphy, E. Bayberry Dr., Islip, engrs., associated with the contractors. CD 1/31.

Tex., Waco—City, Feb. 9, Contrs. 2, 3, and 4, water supply, lines, wash tanks, pumps, from Brooks & Gardner, 1208 W. 8 St., Amarillo. $77,644. CD 1/17.

CONTRACTS AWARDED

Fla., Baldwin—City, first phase of WW sys., incl. drilling, casing wells and installing 60,000 al. steel storage tank, to Industrial Drilling & Boring Corp., Lone Grove Rd., Jacksonville, Zone 7, $75,000. CD 12/27/48.

Tex., Baytown—City, 8 in. c. i. water line along Market St., own forces. $30,000. C. W. Grantham, city engr. CD 1/6/49.

Tex., Groves (Port Arthur P. O.)—P. L. Osborne & E. L. Vaughn, Port Arthur, water lines, own forces. Approx. $32,000.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Mich., Detroit—B.A. 3/7—Dpt. P. Wks., 104 City Hall, Contr. PW-1181, Lateral Sewer 6626, in blocks bounded by Warwick, Artesian, Kirkwood and Paul Sts.; Contr. PW-1182, Lateral Sewer 6668, in Schoolcraft Ave. from Cortland to Dentler Sts. G. R. Thompson, city engr. CD 8/8/44.

N. Y., Port Chester—B.A. 3/20—Daniel A. O'Connell, village clk., Police Headquarters Bldg., 350 N. Main St., Contrs. 1A and 1B, refuse incinerator plant; Contrs. 2, 3, and 4, heating, plumbing and electrical sys. Plans deposit $15. Bids 10/17 on entire job. $175,138 incinerator plant, Contr. B, $168,400, incineration equip. William Raisch, 866a Palo Alto St., Holliswood, consult. engr. CD 10/28, under LB.

Calif., Turlock—B.A. 3/21—City, City Hall, industrial waste disposal proj., incl. pumping and treatment plant and outfall sewer line. Approx. $50,000. Plans deposit $20. W. F. Woolley, City Hall, city engr. Harry N. Jenks, 63 Crescent Dr., Palo Alto, engr. CD 12/1.

Tex., Lake Jackson—Bids Asked—Dow Chemical Co., Freeport, sanitary and storm sewers, $50,000. J. P. Suggs, c/o owner, engr.

LOW BIDDERS

Calif., Los Angeles—City Bd. P. Wks., City Hall, Feb. 8, remodeling sewage pump. plant, Union Pacific Ave. between Los Palos St. and Calzona Ave., from Kemper Constr. Co., 370 Overland Ave. $58,050. Est. $59,089.

Md., Towson—Comrs. Baltimore Co., Court House, Zone 6, Feb. 14, Contr. 148 D, storm drains, approx. 3,200 lin. ft. 12- to 15-in. R.C.P.; 1,070 lin. ft. 24- to 48-in. R.C.P.X.; 200 cu. yd. Class A concrete, etc., from Thompson, Grace & Mays, Fidelity Bldg., Baltimore. $52,840. CD 2/1.

Tex., Fort Worth—City, W. O. Jones, mgr., City Hall, Feb. 9, reconstruct Filter 4 at sewage treatment plant, Proj. 41-P-289, Contr. 3, from F. S. Oldt & Co., 415 Century Bldg., $75,500. Est. $75,585. CD 1/26.

CONTRACTS AWARDED

Calif., Los Angeles—City Bd. P. Wks., City Hall, sewage pump. plant and force mains, to Gardner & McCall, 3724 Atlantic Blvd., Long Beach. $57,960. Est. $68,265. Bids 1/25, awarded 2/8.

Tex., Burnet—City, sanitary sewerage sys. extens., imprvs., own forces. Approx. $50,000. CD 7/28.

Tex., Groves (Port Arthur P. O.)—P. L. Osborne & E. L. Vaughan, Port Arthur, sanitary sewers, drainage, own forces. Approx. $60,000.

▲ Wis., Milwaukee—Milwaukee Sewerage Comn., Jones Island, aeration and sedimentation tanks and operating gallery extens. to sewage treatment plant, to Siesel Constr. Co., 514 E. Ogden Ave., Zone 2, 1,197,483. Bids 2/2, awarded 2/10. CD 2/7, under LB.

BRIDGES

LOW BIDDERS

Colorado—State Hy. Dpt., Denver, Feb. 15, bridge deck and detour 0.088 mi. State Hy. 8, approx. 0.7 mi. east of Watkins; Colo. Proj. F 005-4(1), Adams Co., from Gardner Constr. Co., Glenwood Springs, $61,488, Est. $78,485. CD 2/3.

Indiana—State Rds. Comn., Indianapolis, Feb. 16, 4 span, 160 ft. rein.-con. girder bridge, 50 ft. roadway two 5 ft. walks, untreated timber piling over Fall Creek on Keystone Ave., and 2 span, 280 ft., rein.-con. girder bridge, 50 ft. roadway, two 5 ft. walks, approach grading, C. con. paving, 0.241 mi., steel concrete piling and rein.-con., pile bents, over Overflow Channel of Fall Creek on Keystone Ave., Marion Co., from Harold Tharp, Fountain City, $345,562, est. $407,240*** 1 span, 35 ft., rein.-con. arch, 115 ft. roadway, 0.136 mi. approach grading and c. conc. paving over Wildcat Creek, north of Shelby Co. line, Marion Co. from G. H. Allen Vincennes, $58,608, est. $70,912***5 span, 200 ft. rein.-con. girder bridge, 28 ft. roadway, steel H-beam pile bents, 0.365 mi. approach grading and compacted aggregate surf. over Black River Overflow, Posey Co., from Ryan Constr. Co., Court Bldg., Evansville, $73,352, est $89,228***1 span 65 ft. rein.-con. arch, 28 ft. roadway, 0.288 mi. approach grading, c. con. paving over Morgan Creek, east of Hagerstown, Wayne Co., from Debolt Constr. Co., Richmond, $76,518, est. $93,089. CD 1/20.

Texas—State Hy. Comn., Austin, Feb. 15, rein.-con. bridges Hy. FM 387, R, 406-2-4, Coke Co., from Thomas & Ratliff Rogers, $107,857, est. $114,000 ***Trinity River and Trinity River relief bridges Hy. Loop 12, Proj. F. 1089 (2), Dallas Co., from J. B. Clardy Constr. Co., Box 7024, Sylvania Station, Fort Worth, $365,887, est. $380,000. CD 1/26.

CONTRACTS AWARDED

Washington—State Hy. Dpt., Olympia, steel cantilever bridge with rein.-con. approaches on 0.284 mi. Primary State Hy. 6, at Metaline Falls, F.A.P. F 043-2 (1), Pend Oreille Co., to H. Hagman Cashmere, $548,360. Bids 2/14, awarded 2/14. CD 2/1.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

STREETS AND ROADS

BIDS ASKED

† North Carolina—B.A. 3/7—Bureau Pub. Rds., Dpt. Commerce, Gatlinburg, Tenn., Swain Co.—construct 5.348 mi. Proj. 6A1, Great Smoky Mountains National Park. H. J. Spelman, div. engr.

Ala., Mobile—B.A. 3/21—Mobile Co. Bd. Revenue & Road Comrs., Mobile, 8 road imprvt. projects, totaling 29.38 mi. J. B. Converse & Co., 106 St. Joseph St., engr. CD 9/20.

Tex., Lake Jackson—Bids Asked—Dow Chemical Co., Freeport, street constr. and asph. paving, $65,000. J. P. Suggs, c/o owner, engr.

LOW BIDDERS

Mo., Kansas City—City, City Hall, Feb. 14, resurf. Broadway from 6 St. to southwest Blvd., Pershing Rd. to 26 St.; Summit St. from West Pershing St. to Southwest Blvd., Main St., from Pershing Rd. to 27 St., Grand St. from Kansas City Terminal Viaduct to 27 St.; 25 St. from Grand to McGee Sts., 9 St. from Pennsylvania St. to Broadway; Washington St. from 9 to 10 Sts., 8 St. from Troost to Woodland Sts., Holmes St. from Admiral to 11 Sts., Wyoming St. from 16 St. to 23 St. Viaduct, 13 St. from Oak to Paseo Sts., 14 St. from Oak to Paseo Sts., Beardsley Rd. from 12 to Kersey Coates St., Hickory St. from 9 to 12 Sts., Liberty St. from 12 to 16 Sts., and 16 St. from Wyoming to Liberty Sts. from Bower Constr. Co., 3200 Fairmont St., $234,925; Truman Rd. from Baltimore to Virginia Sts., Cypress to Van Brunt Sts., Main St., from 13 to 20 Sts., 5 to 9 Sts. and 2 to 4 Sts., Walnut St. from 8 St. to Truman Rd., Grand St. from 8 to 13 Sts., 8 St. from Baltimore to Delaware Sts., Prospect St. from Independence Ave. to Truman Rd., Hardesty St. from St. John to 17 Sts., Wilson St. from Independence Ave. to Belmont St., and Cambridge St. from Winner Rd. to Independence Ave., from Midwest Pre-Cote Co. 7600 E. 17 St., $234,386. CD 2/6.

▲ Texas—State Hy. Comn., Austin, Feb. 15, flexible base, one course surf. tr. 9.242 mi. Hy. FM 688 and 1086, Proj. S. 1315 (1) and S. 1316 (1), Taylor Co.; from Fred Hall & Son, Valley Mills, $77,212, est. $72,000***flexible base, two course surf. tr. 12.562 mi. Hy. FM 386, Proj. S. 431 (4), Llano Co.; from McKown & Sons, P. O. Box 151, Austin, $114,807, est. $115,000***flexible base, structures 4.15 mi. Hy. FM 665, S. 554 (1), Nueces Co., from J. M. Dellinger, Inc., P. O. Box 4227, Corpus Christi, $52,119, est. $75,000***flexible base, one course surf. tr. 12.547 mi. Hy. FM 1000 and 1001, S. 1424 (1) and S. 1429 (1), Titus Co., from Dave McCollough, Marshall, $104,365, est. $118,000*** flexible base, two course surf. tr. 9.609 mi. Hy. FM 365, S. 586 (3), Jefferson Co., from R. W. McKinney, P. O. Box 190, Nacogdoches, $243,634, est. $218,000 ***flexible base, one course surf. tr. 5.89 mi. Hy. FM 553, S. 581 (2), Upshur Co., from Foley & Williams, Tyler, $69,947, est. $116,000***flexible base, Duriuco pavement 1.436 mi. Hy. St. 51 and 329, Proj. C. 229-2 and 3-9 and 7, Crane Co., from Hugh McGee, Inc., P. O. Box 1227, El Paso, $77,717, est. $70,000***flexible base, double asph. surf. tr. 18.911 mi. Hy. U. S. 285, S. 1058 (1), Pecos Co., from Holland Page, P. O. Box 1181, Austin, $248,568, est. $315,000***flexible base, two course surf. tr. 22.86 mi. Hy. FM 690 and 299, S. 474 (2), Parmer and Bailey Counties, and flexible base, two course surf. tr. 10.447 mi. Hy. FM 320, S. 1349 (2), Parker Co., from Ernest Loyd, P. O. Box 1120, Fort Worth, $144,965 est. $112,000 and $148,860 est. $120,000 respectively***roadbed tr. and one course surf. tr. 6.716 mi. Hy. FM 1115 and 1296, S. 1378 (1), Gonzales Co., from Thomas & Ratliff Rogers, $59,054, est. $75,000***surf. and Texas and Pacific Ry. overpass 5.256 mi. Hy. St. 19, S. 204 (4) and SG 204 (7), Van Zandt Co., from W. S. Crawford Co., Dallas, Howard Bros., Madisonville and Dew Constr. Co., Tyler, $208,873, est. $275,000*** flexible base, asph. surf., storm sewers, c. conc. 1.709 mi. Hy. St. 348, C 686-1-8, Galveston Co., from Gulf Bitulithic Co., P. O. Box 2096, Houston, $270,545, est. $195,000. CD 1/26.

CONTRACTS AWARDED

New Jersey—State Hy. Dpt., Trenton, repaving, wid'n. 0.869 mi. from Ridgefield and Fairview Traffic Circle to Fairview Ave., Rt. 1, Sec. 16, Bergen Co., to George M. Brewster & Son, Inc., 275 W. Fort Lee Rd., Bogota, $247,822. Bids 2/16. CD 1/26.

Washington—State Hy. Dpt., Olympia, stockpiling crushed stone surf. ballast and mineral aggregates for non-skid single seal treatment and for bit. penetration macad. on State Hys. 12 and 12-A, Johnson's Landing to Megler and vicinity, Pacific Co., to F. H. McEwen, Megler, $99,253. Bids 2/14. CD 2/1.

EARTHWORK, WATERWAYS

BIDS ASKED

† New York—B. A. 3/15—U. S. Eng., Niagara and Bridge Sts., Buffalo, Zone 7, repair flume, Hammondsport, Steuben Co., Serial No. CIVENG-30-023-50-37.

Continued on page 76

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Continued from page 74

LOW BIDDERS

† Georgia—U. S. Eng., P. O. Box 1169, Mobile 7, Ala., Feb. 14, constr. Saddle Dike 3, spillway for Buford Dam, Buford, CIVENG-01-076-t0-43, from H. N. Rogers & Sons Co., 62 S. Front St., Memphis, Tenn. $276,014. CD 1/17.

AIRPORTS

BIDS ASKED

Fla., Orlando—TERMINAL—B. A. 3/29—City council, air terminal, $250,000. CD 1/19.

CONTRACTS AWARDED

▲R. I., Smithfield—AIRPORT—State of Rhode Island, Philip Mancini, comr. P. Wks., State Office Bldg. Providence, airport, runway, hangar, admin. bldg., etc., to M. A. Gammino Constr. Co., 728 Valley Rd., Providence, $1,201,884. Bids 2/8. CD 2/16, under LB.

LATIN AMERICA

Columbia—Dpt. Tecnico, Ferrocarril de Antioquia, Medellin, receiving bids pipe line from Puerto Berrio to Medellin. CD 3/22/48.

PUBLIC BUILDINGS

BIDS ASKED

▲ Conn., Norwalk—HOUSING—B.A. 3/7—City of Norwalk Housing Auth., S. C. Shaughnessy, chn., Washington Village, South Norwalk, two story, brick veneer, frame garden apartments 140 dwelling units, Scribner Ave. MR-27, $1,210,000. Plans deposit $50. Holden McLaughlin Assoc., 470 Lexington Ave., New York, N. Y., archts. CD 1/13.

Ill., Chicago—B.A. 3/7—State of Illinois, Springfield, general work, power piping, plumbing insulating, ventilating and electrical work power plant addns., Chicago State Hospital. CD 4/9/45.

Tex., Wichita Falls—SCHOOL—B.A. 3/8—Wichita Falls Independent School Dist., Witchita Falls, 1 story, 122x273 ft. brick, concrete McGaha School, slab for, $250,000. Ray C. Arnhold, Nacol Bldg., archt. CD 12/6.

Ont., Fort Francis—GARAGE—B.A. 3/8—Canadian Commercial Corp., engrs., 70 Lyon St., Ottawa, garage for Government of Canada, Ottawa. Plans deposit $25.

Calif., Turlock — GYMNASIUM — B.A. 3/14—Turlock High School Dist., Turlock, rein.-con. gymnasium at Turlock High School. $270,000. Plans deposit $25. Mayo & Johnson, Exchange Bldg., Stockton, archts. CD 11/18.

La., Rayville—COURTHOUSE, etc.—B.A. 3/15—Richland Parish Police Jury, Rayville, courthouse and jail. $500,000. Smith & Padgett, Ouachita National Bank Bldg., Monroe, archts.

Mass., Webster—HOUSING—B.A. 3/15—Town of Webster Housing Auth., John N. Barmly, chn., 120 Main St.; housing State Aided Proj. 200-1, Webster. Plans deposit $50. CD 6/3.

▲ Pa., Phila.—TUBERCULAR—B.A. 3/15—General State Auth., 18 and Herr Sts., Harrisburg, general constr., heating, plumbing, electrical, elevator of tubercular patients bldg. at Philadelphia (Byberry) State Hospital. $2,200,000. Plans deposit $15 general, $5 elevator, $7.50 others. Davis & Poole, 112 S. 16 St., archts. A. P. Jones, c/o owner, ch. engr. CD 2/2.

Calif., Berkeley—CLASSROOM, etc.—B.A. 3/17—Bd. Regents University of California, Berkeley, (1) general contract (2) heating and ventilating, (3) plumbing (4) combined heating, ventilating and plumbing, (5) electrical work, (6) elevators, rein.-con. with steel truss classroom and office bldg. with classroom portion 3 and 4 stories and office portion 4 and 5 stories, 229,000 sq. ft. outside gross area. Approx. $500,000. Plans deposit $100. Weeks, Frick & Kruse, 251 Kearny St., San Francisco, archts. Hall & Pregnoff, 251 Kearny St., San Francisco, engrs. CD 9/25/47.

▲ Tenn., Nashville—SCHOOL—B.A. 3/18—State Dpt. Educ., Memorial Bldg., school for blind, $2,000,000. Extended date. Marr & Holman, Stahlman Bldg., archts. CD 1/10.

Alta., Calgary—BARRACKS—B.A. 4/12—J. D. McCarthy, secy., Canadian Commerical Corp., 70 Lyon St., Ottawa, Ont., 250 man barrack block, Currie Barracks. Tender No. G-3-29-573. Approx. $300,000. Plans deposit $100. CD 2/20.

LOW BIDDERS

Tenn., Memphis—PHYSICAL EDUCATION—State Dpt. Educ., Nashville, Feb. 10, physical educ. bldg. at Memphis State College, from Seth E. Glem & Assoc., Porter Bldg. $426,642. CD 1/10.

▲† Utah, Salt Lake City—HOSPITAL—U. S. Eng., 180 New Montgomery St., San Francisco, Calif., Feb. 16, 500 bed rein.-con. brick hospital, 4 residential bldgs., 1 boiler plant and shop; 1 kitchen bldg.; 1 recreational bldg.; 1 theatre bldg.; 1 laundry; 1 gas meter house, incl. utilities for Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., from Wunderlich & Curtlett, 820 W. Esther St., Long Beach, Calif. $7,898,000. CD 12/5.

Va., Charlottesville—HIGH SCHOOL—City and Albemarle Co., Charlottesville, Feb. 10, Joint Negro High School.

from John W. Daniel & Co., Danville. $732,850. CD 12/16.

CONTRACTS AWARDED

Calif., San Francisco—COLLEGE—State Div. Architecture, P. Wks. Bldg., Sacramento, electrical work, incl. main service lighting power and special laboratory services at science bldg. at San Francisco State Teachers College, to Malm & Weller, 622 Larkin St. $80,832. CD 2/7.

▲ Fla., Tallahassee—LIGHT and POWER PLANT—City Hall, complete new main electric light and power plant at St. Marks in Wakulla Co., to Ivy H. Smith, 1525 San Marco Blvd., Jacksonville, Zone 7. $1,232,514. Bids 2/13, awarded 2/15. CD 2/16, under LB.

Ga., Atlanta—SCHOOL—City Bd. Educ., City Hall, Williams Street School, to Henry A. Ivey Inc., 569 Plum St. N.W. $533,686. Bids 2/7, awarded 2/14. CD 2/13, under LB.

† Md., Suitland—CAFETERIA—Pub. Bldgs. Admin., General Services Bldg., Wash. 25, D. C., 1 story, 48x300 ft., brick, glass block cafeteria exten.; alterations at Bldg. 3, Bldg. No. 67305, to Blake Constr. Co., 33 E. St. S.W. Wash., D. C. $298,238.

Miss., Greenville—COURTHOUSE, etc.—Washington Co., Greenville, courthouse and jail, to G. E. Bass & Co., P. O. Box 1033, Jackson. $252,600. Bids 2/13. CD 1/19.

▲ Va., Staunton—RECEPTION—State of Virginia, Richmond, reception bldg. and 2 dormitory bldgs. at Western State Hospital, to Virginia Eng. Co., Inc., P. O. Box 971, Newport News. $1,770,000. Bids 2/2. CD 2/8, under LB.

† Wash., Seattle—OPERATIONS, etc.—U. S. Eng., 4735 E. Marginal Way, Zone 4, operations and maintenance bldg., gate house, bachelor officers' quarters, 2 enlisted men's barracks, etc. for Station P/40 Serial No. ENG 45-108-50-46, to Lease & Leighland, 1501 N. 35 St. $481,143, est. $483,926. Bids 2/14. CD 2/8.

COMMERCIAL BUILDINGS

BIDS ASKED

▲ Va., Bristol—HOSPITAL—B. A. 3/8—Kings Mountain Memorial Hospital, c/o Dent & Aydelott, archts., First Natl. Bank Bldg., Memphis, Tenn., hospital. $1,500,000. CD 10/6.

Fla., Miami Beach—THEATER—B. A. 3/9—Wometco Theaters c/o Michael J. De Andelis, Butler Bldg., Rochester, N. Y. Carib Theater.

Okla., Tulsa—WAR MEMORIAL—B. A. 3/20—Trustees of Jaycee War Memorial Fund, 223 W. Fourth St., building, 21 and Main Sts. Plans deposit $50. Donald H. Honn, 2614 E. First St., supervy. archt.

SOON LETS CONTRACT

N. C., Durham—DIAL TOLL OFFICE—Southern Bell Telephone Co., Hurt Bldg., Atlanta, Ga., soon lets contract dial toll office bldg. Shutze & Armistead, Candler Bldg., Atlanta, Ga., archts.

Tex., Baytown—MERCANTILE—Sears Roebuck & Co., 4207 Main St., Houston, soon lets contract 164x261 ft. mercantile. $525,000. George L. Dahl, 508 Young St., Dallas, archt. CD 2/12.

CONTRACTS AWARDED

Ala., Phenix City—APARTMENT UNITS—Hawthorne Apartments, Inc., c/o contractor, 52 apartment units, to Williams Constr. Co., 1032 13 St., Columbus, Ga., Approx. $300,000.

Calif., Larkspur—APARTMENT—Schultz Co., Box 771, San Rafael, 12 apartments, incl. 60 units on Lots 1-7 Subdv. 1, Bon Air Owner builds. $390,250.

▲ N. J., Garfield—APARTMENTS—Ideal Homes Corp., Mariano P. Pace, pres., Lodi, garden apartment project for 258 families near Dolphine Parkway and Shaw St. Owner builds. $2,000,000. Charles G. Eichhols, c/o owner, archt.

▲ Tenn., Nashville—HOMES—Home Sites, Inc., c/o Marin K. Barry, Commerce Union Bank, 210 homes in Thompson Lane and Woodcrest off Nolansville Rd. Owner builds. $1,400,000.

Ont., Oshawa—CHURCH—Roman Catholic Parish of the Holy Cross, 379 Simcoe St., 44x125 ft., concrete, brick church to Bathe & Mac Lellan, 81 King St., $250,000. J. H. Haffe, 96 W. Bloor St., Toronto, archt.

INDUSTRIAL BUILDINGS

BIDS ASKED

Ill., Moliet—PLANT—Bids Asked—Bleckson Chemical Co., Patterson Rd., chemical plant addn. $150,000. Johnson & Johnson, 111 W. Washington St., Zone 2, archts. CD 8/19/46.

Tenn., Chattanooga—TRUCKING TERMINAL—Bids Asked—Dixie-Ohio Express Co., 237 Fountain St., Akron, O., trucking terminal, $75,000. Abreu & Robeson, Inc., Marietta St. Bldg., Atlanta, Ga. archts.

SOON LETS CONTRACT

Fla., Ft. Lauderdale—PLANT—Ft. Lauderdale Daily News, c/o Robert M. Little & William G. Crawford, archts., 220 S. E. 8 Ave., soon lets contract printing plant addn.

Me., Bangor—WAREHOUSE—Sears Roebuck & Co., 4640 Roosevelt Blvd., Phila., Pa., soon lets contract warehouse, $100,000. Eaton W. Tarbell & Assoc., 84 Harlow St., Bangor, archt. CD 9/6.

CONTRACTS AWARDED

Ill., Chicago—FACTORY—McDonnell & Miller, Inc., 3516 N. Spaulding St. Zone 18, steel brick concrete factory addn. to Jorgen Jorgensen, 3142 N. Magle St., Zone 35, $75,000. Kelfstad Eng. Co., 3450 N. Kostner St., Zone 40, engr.

Kan., Scott City—POWER PLANT—Wheatland Electric Co-operative, Scott City, power plant bldg. to O. D. Milligan Constr. Co., Manhattan, $210,000, Bids 1/27, CD 11/30.

La., Kaplan—DRIERS and STORAGE BINS—Kaplan Rice Mill, c/o C. J. Montgomery, Sr., pres., Kaplan, driers and storage bins. Owner builds. $175,000.

Miss., Meridian—PLANT—Mississippi Power Co., c/o contractor, foundation, slab and misc. structural concrete work for Plant Sweatt, to Hyde Constr. Co., Hughway 80 W., Jackson, Approx. $500,000.

▲ Tex., Dallas—SERVICE PARTS DEPOT—International Harvester Co., c/o E. H. Watkins, 1809 S. Lamar St., 200,000 sq. ft. service parts depot, Trinity Industrial Dist. to O'Rourke Constr. Co., 1001 W. Commerce St. Approx. $1,500,000. CD 1/11.

Tex., La Grange—PLANT—South Texas Producers Assn., La Grange, milk processing plant, own forces. Approx. $135,000. CD 2/9.

Alta., Edmonton—PLANT BUILDING—EDECO Canada Ltd., 101 St. and 79 Ave., six 40x100 ft. plant buildings to complete development, air-conditioning to Northern Asbestos & Roofing Co., c/o owner. Approx. $500,000. D. S. J. Burns, c/o owner, engr.

Ont., Sarnia—PLANT—Imperial Oil Ltd., 445 S. Christina St., propane plant at refinery, incl. 2 fractionating towers, condensers, reboilers, heat exchangers and storage tanks, own forces. Approx. $300,000. CD 4/25/46.

UNCLASSIFIED

BIDS ASKED

California—TRAFFIC SIGNAL SYSTEM, etc.—B.A. 3/15—State Div. Hys., P. Wks. Bldg., Sacramento, traffic signal sys. and hy. lighting and channelization on Bayshore Hy. at N. 1 St. G. T. McCoy, Sacramento, state hy. engr.

† Texas — VISITORS OVERLOOK FACILITIES — B.A. 3/28—U. S. Eng., 606 Santa Fe Bldg., Galveston, visitors overlook facilities, Whitney Dam and Reservoir, Hill and Bosque Counties, CIVENG-41-243-50-165. Plans deposit $10. CD 7/16/46.

† California—CROSSING TOWERS—B.A. 3/29—Bureau Reclamation, Elverta, constr. Sacramento and San Joaquin River crossing towers for 230-kilovolt Shasta-Tracy transmission lines Nos. 1 and 2 (west side lines) Central Valley Proj., for Sacramento River crossing is on east side of Sacramento River approx. 1 mi. south of Rio Vista, and San Joaquin River crossing is on each side of San Joaquin River approx. 4 mi. southeast of Rio Vista, Spec. 2923. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

LOW BIDDERS

Pennsylvania—BATHHOUSES, etc.—General State Auth., 18 and Herr Sts., Harrisburg, Feb. 15, general contract, bathhouses, park shelters and more than 50 other structures for public use at Raccoon Creek State Park, Beaver Co., from The Guy Johnston Lumber & Supply Co., Steubenville, O., $203,675. Est. $160,-000. CD 1/23.

CONTRACTS AWARDED

Tex., McKinney-Paris—TELEPHONE LINES—Southwestern Bell Telephone Co., 308 S. Akard St., Dallas, reconstructing overhead telephone lines, force account. $165,000. CD 2/9.

Ont., Toronto—GRANDSTAND FOUNDATIONS—University of Toronto (Bd. Governors) Toronto, foundations for new grandstand, Devonshire Pl. side of Varsity Stadium, to George Hardy Ltd., 163 Wicksteed Ave., Approx. $650,000. Bids 2/6. CD 1/31.

PROPOSED PROJECTS

WATER SUPPLY

Ky., Ludlow—City, Courthouse, pump. station, filter plant, water line extens., valves, fire hydrants, etc. $460,000. John Fielding, 25 W. 32 St., Covington, consult. engr.

Mass., Springfield—City, Water Dpt., WW. sys., incl. 3 mi. 36 in. pipe line to Forest Park Area and 30 in. pipe line for Industrial customers. $800,000. Peter C. Karalekas, ch. engr. Water Works Dpt., engr.

Minn., St. Anthony (P. O. Minneapolis)—Village, H. H. Janniges, clk., municipal WW sys., incl. 43,000 ft. water mains, 83 hydrants, 200,000 gal. storage tank and 300 gpm. pump. $250,000. MacGregor & Davis, 1108 Nicollet Ave. Minneapolis, and 517 Commerce Bldg., St. Paul, consult. engrs.

S. C., Folly Island—Bd. Twp. Comrs. for Folly Island, Charleston Co., WW. $192,000. The John McCrady Co., 9 State St., Charleston, engrs.

S. C., Moultrieville—Bd. Twp. Comrs. of Sullivan's Island, 65 Broad St., Charleston, WW extens. $100,000. The John McGrady Co., 9 State St., Charleston, consult. engr.

Tex., Anahuac—Trinity Bay Conservation Dist., c/o G. R. Conado, chn., Anahuac, water sys., serving unincorporated community of Stoval, Winnie and Chambers Counties. $167,000. Freese, Nichols & Turner, 2111 Natl. Standard Bldg., Houston, consult. engrs. CD 9/16.

Tex., Houston—Harris County Water Control & Imprvt. Dist. 20, Courthouse, voted bonds. Feb. 8. WW. $150,000. Frank J. Metyko, Scanlan Bldg., consult. engr.

Utah, Tremonton—City, Kleon Kerr, mayor, City Hall, water sys. imprvs. addns. $132,400. Wm Templeton, Dooly Bldg., Salt Lake City, consult. engr.

Wash., Seattle—Water Dist. 20, c/o County Auditor, County-City Bldg., Zone 4, water supply in Sunnydale Dist. south of here, $700,000.

Wash., Spanaway—Town, Town Hall, water sys., $314,-000.

Ont., Grimsby—Town, G. G. Bourne, clk., Main St. W., WW imprvs., incl. duplicate intake, with screen and intake, mixing and settling tanks, exten. filter plant, high lift electric pump, 12 in. c. i. main and 8 in. cross sections on Adelaid St. Approx. $174,000. Gore & Storrie, 1130 Bay St., Toronto, engrs.

SEWERS, WASTE DISPOSAL

Calif., Goleta—Goleta Sanitary Dist., Goleta, voted $225,000 bonds, sewage disposal plant, on Mescalitas Island. $315,000. CD 1/23.

Colo., Las Animas—City, D. A. McAfee, clk., City Hall, sewerage sys. extens. and sewage treatment plant, $193,000. Ripple & Howe, Cooper Bldg., Denver, consult. engrs. CD 2/14.

Conn., Hartford—Metropolitan Dist., Bd. Contract & Supply, 115 Broad St., trunk sewer, Bloomfield Center to Hartford line, $500,000. W. Wurts, c/o owner, engr.

Del., Wilmington—Levy Court of New Castle, sanitary sewage collector sys. to serve Collins Park Area, $194,300; intercepting sewer from New Castle limits to Wilmington's limits, $300,000; sanitary sewage collector sys. to serve the Liftwood and Carrcroft areas, $154,500; sanitary sewage collector sys. to serve Holloway Terrace area, $177,100.

▲ Ga., LaGrange—City, exten. sewage collection sys., interceptors and 2 sewage treatment plants, $1,-499,000.

Minn., Milaca—Village H. Anderson, clk., sewage treatment plant. $155,000.

Mo., Farmington—City, City Hall, voted $250,000 bonds Feb. 7, sewerage sys. imprvs., incl. relocation and enlargement sewage treatment plant, etc.

Mo., Kansas City—City, City Hall, trunk sanitary sewer exten., 83 and Wornall Rd. to 77 and Ward Parkway. $250,000.

N. C., Henderson—City, bond election Mar. 28, sewerage extens. $250,000.

Okla., Anadarko—City, voted bonds, sanitary sewer extens., sewage disposal plant. $387,000. C. H. Guernsey & Co., 1414 N. Robinson St., Oklahoma City, Zone 6, consult. engrs. CD 12/15.

Pa., Mayview—General State Auth., 18 and Herr Sts., Harrisburg, sewage disposal plant and collection sys. for rain water and sanitary sewage at Mayview State Hospital. $427,000. Morris Knowles, Inc., Park Bldg., Pittsburgh, consult. engr. A. F. Jones, c/o gen. ch. engr. CD 12/19.

S. C., Charleston—St. Phillip's and St. Michael's Public Service Dist. Comm., Naval Base, Charleston, sewerage sys. extens. $200,000. The John McCrady Co., 9 State St., consult. engr.

▲ Tex., Anahuac—Trinity Bay Conservation Dist., Anahuac, storm sewers, $89,300; drainage sys. $1,710,000. Freese, Nichols & Turner, 2111 Natl. Standard Bldg., Houston, consult. engrs.

Tex., Cockrell Hill—City, Ray Holder, city atty., voted bonds, sanitary sewers. $100,000.

Tex., Houston—Harris County Water Control & Imprvt. Dist. 20, Courthouse, voted bonds, Feb. 8, sanitary and storm sewers. $175,000. Frank J. Metyko, Scanlan Bldg., consult. engr.

Tex., Pasadena—C. O. Beeler Lumber Co., Inc., 2300 Pease St., Houston, storm sewers $60,000, sanitary sewers $75,000, Red Bluff Rd. and East Sterling (399 acre site for 1,850 homesites).

Utah, Bountiful—City, V. B. Waddoups, mayor, Bountiful, storm sewerage sys. $112,300. Wm Templeton, Dooly Bldg., Salt Lake City, consult. engr. CD 5/27.

Alaska, Fairbanks—City, sewers, $125,000.

Alaska, Gig Harbor—Town, Town Hall, sewerage sys. $940,000.

BRIDGES

▲ Tex., San Antonio—City, Jimmie Knight, street comr., City Hall, Military Plaza, grade separation or overpass between W. Commerce and Nueva Vista Sts., from Leona to Colorado St. $1,500,000. W. W. Toxey, city engr., J. L. Dickson, 210 W. Nueva St., state consult. 2D 9/23/43.

STREETS AND ROADS

Calif., Los Angeles—Bd. Supervs. Los Angeles Co., 501 Hall of Records, curbs, gutters, walks in 112 St. and other streets, Inglewood. $82,700; curb, gutters, walks in Loleland St., Bel Gardens. $348,-700. C. E. Arnold, co. engr. CD 9/19/45.

† Colorado—Bureau P. Rds., New Customhouse, Denver, Colo.,

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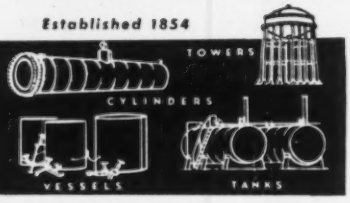

Boulder Co.—grading 2.8 mi. Boulder-Idaho Springs 29N, $250,000.
Clear Creek Co.—base course, bit. 9.2 mi. Echo Lake, 55 A 3, $170,000.
bit. 7.4 mi. Berthoud Pass, 32 B 5, $85,000.
Douglas Co.—grading 4 mi. Jarre Canyon 50 G 2, $210,000.
Grand Co.—grading 7.6 mi. Willowy Creek Pass, 24 A B-2, $300,000.
Rio Blanco Co.—grading, base course 4 mi. Marrine-Phippsburg 16 A, $150,000.
Summit Co.—base course, bit. 7 mi. Loveland-Fremont, 33 A 3, $125,000. W. B. Matteson, div. engr.
La., Port Allen—Road Dist. 1 of West Baton Rouge Parish, voted bonds, rebuild streets, $125,000.
New York—Bureau Contracts & Accounts, Albany, 2 mi. Niagara Thruway from east city line westerly to Fillmore Ave., Buffalo. Nussbaumer, Clarke & Velzy, Inc., 327 Franklin Ct., Buffalo, and Shortridge, Hardesty & Clinton D. Hanover, Jr., 101 Park Ave., New York, Zone 17, engrs. CD 3/21/46.
▲ Texas—Texas Turnpike Co., c/o V. D. Bostick & Assoc., Magnolia Bldg., Dallas.
Dallas, Ellis, Navarro, Freestone, Leon, Madison, Grimes, Walker, Montgomery and Harris Counties—218 mi. turnpike between Dallas and Houston, $84,000,000. J. E. Greiner Co., 3712 Milam St., Houston, consultants engr. Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York, N. Y., traffic and consults. CD 1/27.
Tex., Jourdanton—Atascosa Co., Matt Davis, judge, Jourdanton, 19 addnl. mi. road work. $140,000.
Tex., Pasadena—C. O. Beeler Lumber Co., Inc., 2300 Pease St., Houston, c. conc. paving Red Bluff Rd. and East Sterling, (399 acre site of 1,850 homesites) $100,000.
Ont., Woodstock—City Council, Woodstock, c. conc. pavements, repairs to pavements, $131,000. Wilfred Ure, City Hall, city engr.

EARTHWORK, WATERWAYS

R. I., Providence—State of Rhode Island, Phillip A. Mancini, dir. State Dpt. Pub. Wks., dredging channel, 80,000 cu. ft. Galilee Harbor, construct jetties-bulkheads. $200,000.

AIRPORTS

† Calif., Muroc—ROADS, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, roads, walks, parking at Muroc Air Force Base, Approx. $100,000. CD 10/26.
Ill., Chicago—CONTROL TOWER, etc.—City, City Hall, Zone 2, control tower and utility bldg. at Merrell C. Meigs Field. $300,000. Ralph H. Burke, 20 N. Wacker Dr., Zone 6, engr. CD 6/11/45.
† Neb., Fort Crook—MESS HALL—Dpt. of Army, The Pentagon, Wash. 25, D. C., mess hall for enlisted men at Offutt Air Force Base. $200,000.
Neb., Omaha—APRON—City, City Hall, 18 and Farnam Sts., concrete apron for big liners at Municipal Airport. $140,000. Kirkham Eng. Co., 1504 Dodge St., consult. engr. CD 6/18/45.
† N. J., Fort Dix—ADMINISTRATION—U. S. Dpt. Army, National Guard Armory, Trenton, administration bldg., hangars and aprons, Approx. $150,000.
S. D., Lemmon—AIRPORT—City, airport development, grading, drainage, surface 1 runway, fencing, marking, turfing. $120,000. Julian Staven, Box 508, Rapid City, consult. engr. CD 1/15/45.

LATIN AMERICA

Bolivia—Republic of Bolivia, La Paz, plans university, at Cochabamba, $20,000,000; hotel Ayopaya, $2,500,000; university Tarija, $10,000,000; hospital at Potasi, $3,500,000; hospital at Oruro, $3,500,000; school for workers at La Paz, $7,000,000. Ministry of Pub. Wks., La Paz, engr.
El Salvador—Republic of Salvador, San Salvador, plans hydro electric project in Lempa River, bids for construction and equipment will be received from United States firms, $16,000,000. CD 2/2/47.
Mexico, Mexico City—Leopoldo Dominguez Vice, Aguilar y Seijas, 170, Mexico, D. F., Mexico, plans 7 story apartment, $400,000.
Mexico, Mexico City—Ricardo Toledo, Alabama, 42, Mexico, D. F., plans 3,000 seat theatre. $600,000.

PUBLIC BUILDINGS

Ala., Selma—HOUSING—Selma Housing Auth., Selma, plans by Raymond Sizemore, 16 S. Hull St., Montgomery, 300 housing units, Approx. $750,000.
Calif., Azusa—SCHOOL FACILITIES—Azusa City School Dist., 340 W. 5 St., voted $250,000 bonds, school facilities. CD 1/2.
Calif., Fullerton—SCHOOL—City School Dist., voted $500,000 bonds Ford Ave. school cafeteria; Golden Hills School; classrooms. Marsh, Smith, Powell, 208 W. 8 St., Los Angeles, archts. CD 1/23/47.
Calif., Los Angeles—COURT—Bd. Supervs. Los Angeles Co., Hall of Records, plans by H. W. Underhill, 4313 Leimert Bldg., 18,860 sq. ft. Inglewood Courts Bldg., Inglewood, $254,610.
Calif., Montebello—CITY HALL—City, voted bonds, city hall, $400,000. John L. Cole, city engr.

Calif., Needles—SCHOOL FACILITIES—Needles Elementary School Dist., voted $400,000 bonds school facilities. Clark & Frey, 879 N. Palm Canyon Dr., Palm Springs, archts.

Calif., Puente—SCHOOL—Puente Union High School Dist., Puente, plans by William H. Harrison, 616 W. 5 St., Los Angeles, reinforced brick, concrete high school addns., incl. science, administration, commerce, mathematics, classroom, language, shop and cafeteria bldgs. $530,000. CD 11/11.

Calif., San Francisco—WAREHOUSE—Dpt. P. Wks., City Hall, plans by Dodge Riedy, City Hall, city archt., voting machine warehouse, $160,000. CD 2/5/45.

Calif., San Francisco—POLICE ACADEMY, etc.—Dpt. P. Wks., City Hall, plans by Dodge Riedy, city archt., police academy and training grounds, $350,000. CD 3/22/43.

Colo., Littleton—SCHOOL—School Dist. 6, Araphoe Co., Littleton, bond election Apr. 18, 1 story, brick grade school, $256,000. Atchison & Kloverstrom, 1254 Monaco Parkway, Denvr, engrs. and archts.

Conn., Darien—HOUSING—Town, E. E. Fatherley, chan. Darien Housing Auth., plans by Holden McLaughlin & Assoc., 570 Lexington Ave., New York, N. Y., and Nelson L. Page, assoc. archt., Mansfield Ave., 50 family frame housing units, Fitch Site. $450,000. CD 10/26/48.

Del., Wilmington—SCHOOL—Alfred T. du Pont Special School Dist., Talleyville, Wilmington, plans by Massena du Pont, 704 Delaware Ave., school auditorium, in Talleyville. $337,000, CD 10/31.

▲ **Fla., Tampa**—HOUSING—Tampa Housing Auth., c/o M. Leo Elliott, Citizens Bldg., Tampa and Norman Six, Hillsborough Hotel Lobby, Tampa, assoc. archts., 1,500 housing units, $4,000,000-$5,000,000. CD 11/21.

▲ **Ga., Atlanta**—HOUSING—Atlanta Housing Auth., c/o Poundstone, Ayers & Godwin, Palmer Bldg., principal archts., 900 housing units for Negroes in Lakewood Park Sect. Proj. 1 under public housing program, $7,200,000. Fuller & Beckett, 88 Walton St. N. W.; Logan & Williams, Palmer Bldg., and Escatell-Norris Co., 644 Spring St. N. W., assoc. archts.

▲ **Ill., Hinsdale**—HOSPITAL—Hinsdale Hospital & Sanitarium, 140 Oak St., plans by Edward G. Halstead, 126 Herrick Dr., Riverside, 3 and 6 story, steel, concrete, brick, hospital. $3,000,000.

Ia., Bettendorf—SCHOOL—Bd. Educ., Bettendorf, $500,000 bond election Mar. 13, high school, W. F. Rennbrock & Assoc., 1630-5 Ave., Moline, Ill., archts. CD 2/15.

▲ **Ia., Independence**—HOSPITAL—State Bd. Control, E. 12 Court St., Des Moines, plans by Ralph Arnold, state archt., 5711 Waterbury Circle, patients bldg., Independence State Hospital. $2,000,000.

▲† **Ia., Fort Dodge**—POST OFFICE, etc.—General Services Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, courthouse, new site and bldg. $1,440,000. CD 10/29/45.

Ia., Jefferson—HOSPITAL—Greene Co., Jefferson, hospital addn. $480,000.

† **Kan., Garden City**—POST OFFICE, etc.—General Services Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, exchange and new bldg. $420,000

Kan., Pittsburg—STUDENT UNION—State Bd. Regents, Topeka, plans by T. W. Williamson & Co., Nat'l. Bank of Topeka Bldg., Topeka, student union bldg., Kansas State Teachers College. $500,000. CD 7/17/47.

▲ **Ky., Henderson**—HOUSING—Town of Henderson Housing Comn., plans by Meriwether, Marye & Assoc. 236 E. Short St., Lexington, 200 unit housing. $1,400,000.

La., Lake Charles—LIBRARY—City Hall, plans by Stauber & Rather, 3218 Main St., Houston, Tex., Carnegie Library. $400,000. CD 10/10.

† **La., Natchitoches**—POST OFFICE—General Services Admin., 18 and F Sts., N.W., Wash. 25, D. C., post office, etc., new site and bldg., or demolition and new bldg. $365,000. CD 11/2/45.

† **La., New Iberia**—POST OFFICE, etc.—General Services Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, etc., new site and bldg. or addn. land, demolition and new bldg. $270,000. CD 11/2/45.

Md., Leonardstown—SCHOOL—St. Mary's Co. Bd. Educ., plans by Jamison & Murray, 8081 Georgia Ave., Silver Spring, 1 story, 140x360 ft., brick, cinder block Banneker Elementary and High School, near here. $350,000.

▲ **Md., Oakland**—SCHOOLS—Comrs. Garrett Co., Oakland, plans by E. H. Glidden, Jr., 412 Equitable Bldg., Baltimore, 2 story, 62x350 ft., brick, concrete, steel, cinder block school, $600,000; 2 story, 62x390 ft. concrete, brick, steel, cinder block school. $650,000. CD 8/20/48.

Mass., Belchertown—EMPLOYEES—Commonwealth of Mass., Dpt. Mental Health, 15 Ashburton Pl., Boston, employees bldg., State School. $400,000.

† **Mass., Boston**—POST OFFICES—General Services Admin., 18 and F Sts. N.W., Wash. 25, D. C., Watertown Branch Post Office, site and bldg. $400,000; Wellesley Branch Post Office, site and bldg. $320,000. CD 11/5/45.

Mass., Foxboro—EMPLOYEES—Commonwealth of Mass., Dpt. Mental Health, 15 Ashburton Pl., Boston, employees bldg., State Hospital. $350,000.

Mass., Foxboro — HOSPITAL Pub. — Commonwealth of Mass., Dpt. Mental Health, 15 Ashburton Pl., Boston, 9-8 bldgs., addn., alterations, State Hospital. $380,000.

Mass., Malden—HOUSING—City of Malden Housing Auth., George Edward, chr., plans by C. F. Springall, 50 Park St., brick, frame garden apartments, Huntings Field, approx. $250,000.

Mass., Monson—HOME—Commonwealth of Mass., Dpt. Mental Health, 15 Ashburton Pl., Boston, married couples home, State Hospital. $400,000.

Mass., Wrentham—HOME—Commonwealth of Mass., Dpt. Mental Health, 15 Ashburton Pl., Boston, Female Home for Employees State School. $290,000.

Mass., Peru—SCHOOL—Town, Bd. Selectmen, Town Hall, plans by Bradley & Gass, 71 North St., Pittsfield, 2 story, brick, concrete school. $250,000.

Mass., Stoughton—HOUSING—Town of Stoughton Housing Auth., plans by Samuel Glazer Assoc., 105 Newbury St., Boston, 26 unit, 1 story, single, Veterans Housing. $260,000. CD 3/4.

Minn., Chisholm—HOUSING—Chisholm Housing & Redevelopment Auth., Chisholm, 70 apartment units, low-rent housing. Approx. $250,000.

Minn., Hanska—SCHOOL—Bd. Educ., W. M. Harvl, supt. Schools, plans by Long & Thorshov, 400 Metropolitan Life Bldg., Minneapolis, 3 story, 102x116 ft., school addn. $250,000.

Minn., Robbinsdale—SCHOOL—Bd. Educ., E. J. Cooper, supt. Schools, plans by Haxby, Bissell & Belar, 1111 Nicollet Ave., Minneapolis, 2 story, 60x170 ft. school addn. $250,000. CD 12/7.

Miss., Columbus—DISTRIBUTION PLANT—City, City Clk., voted $100,000 bonds Jan. 24, distr. plant for Stuart Company. CD 1/3.

Miss., Hattiesburg—DORMITORY—State Bldg. Comn., New Capitol Bldg., Jackson, plans by Landry & Matthes, Hattiesburg, girl's dormitory, Mississippi Southern College. $300,000.

† **Miss., Laurel**—POST OFFICE—General Services Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office, etc., new site and bldg. $548,000. CD 11/7/45.

Mo., Clayton (St. Louis P. O.)—COURTHOUSE—St. Louis Co., c/o Luman F. Matthew, presiding judge, St. Louis Co. Court, and Leo Sievers, co. clk., $500,000 bond election Mar. 28, replacing center section of old courthouse with modern brick, steel, concrete structure, modernization of south wing. CD 2/6.

▲ **Neb., Lincoln**—HOUSING—Lincoln Housing Auth., R. E. Campbell, chn., 114 N. 13 St., project abandoned, 700 unit housing. $2,000,000. D. L. Erickson, city engr. CD 9/30.

N. J., Cedarville—SCHOOL—Lawrence Twp. School Dist., sketches by Alexander, Merchant & Sons, 1 Elm Row, New Brunswick, school. $350,000.

▲ **N. J., Trenton**—HOUSING—City of Trenton Housing Auth. 875 N. Willow St., housing, John Fitch Way and Union St., $900,000, Mifflon and Oakland Sts., $1,500,000.

N. Y., New York—LIBRARY—Dpt. P. Wks., Municipal Bldg., Zone 7, plans by Samuel A. Hertz, 103 Park Ave., Zone 17, 2 story library, 2585 Barnes Ave. L-10. $361,000. (To go ahead in 1953). CD 8/20/45.

N. C., Kinston—HOSPITAL—Lenoir County Hospital, Kinston, $465,000 bond election July 1, general hospital. CD 4/13/48.

▲† **O., Cincinnati**—LABORATORY, etc.—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., brick, concrete, steel laboratory, industrial hygiene, $5,325,000; 2 story, brick, reinforcon laboratory, stream pollution Parkway and Grandin Rd., $4,000,000, for U. S. Public Health Service. CD 11/15/45.

† **O., Cincinnati**—RADAR and ENGINEERING HEADQUARTERS—U. S. Govt. Purch. & Disbursing Officer, F. W. Forsythe, Lt. Col., Bldg. 101, Fort Hayes, Columbus, 1 story, reinforcon, radar and engineering headquarters bldg.

O., Cuyahoga Falls—SCHOOL—Bd. Educ., Cuyahoga Falls, voted $950,000 bonds, 1 story H-shaped West Side School, 23 St. between Marcia Blvd. and Phelps Ave., Approx. $750,000; gymnasium, auditorium and workshop addn. to Sill School, on east side, Approx. $200,000. M. M. Konarski, 844 W. Market St., Akron, Zone 3, archt. CD 7/13.

O., Toledo—SCHOOL—Bd. Educ., Adams Twp., Lucas Co., Reynolds Rd., $575,000 bond election May 2, 8-room school near W. Bancroft St. and Holland-Sylvania Rd., 4-room addns. to Glendale and Mt. Vernon Schools, near here. Preliminary sketches by Frank P. Lange, 1108 Secor St., and Horace M. Coy, 1716 Heatherdowns St.

Pa., Bridgeville—SCHOOL—School Dist. of South Fayette Twp., Bridgeville, plans by Beall & Parkins, 601 Washington Trust Bldg., Washington, 1 story, 60x300 ft., brick school, S. Fayette Twp., near here. $300,000.

Pa., California—DORMITORY, etc.—General State Auth., 18 and Herr Sts., Harrisburg, plans by Earl R. Loomis, Chelwick, mens dormitory at California State Teachers College, $263,200; plans by Bowers & Barbalat, Bakewell Bldg., Pittsburgh, auditorium, $263,200. A. F. Jones, c/o owner, ch. engr. CD 1/30.

Pa., West Mifflin—MUNICIPAL—West Mifflin Boro, P. O. Box 421, Ferrara Bros. by Dutton & McLean, 119 E. Montgomery Ave., Pittsburgh, two 3 story municipal bldg. addn., Greensprinq and Eastman Sts. $250,000.

Pa., Greensburg—HOSPITAL—Comrs. Westmoreland Co., Courthouse, Greensburg, plans by Sorber & Hoone, 711 1st. Natl. Bank Bldg., 2 story, psmnt., brick, tile hospital addn. county home. $250,000.

Pa., Phila.—LAUNDRY—General State Auth., 18 and Herr Sts., Harrisburg, laundry bldg. at Phila. State (Byberry) Hospital. $743,000. Day & Zimmerman, Inc., Packard Bldg., consult. engr. A. F. Jones, c/o owner, ch. engr. CD 1/10/47.

R. I., Bristol—SCHOOL—Town, Edward Fitzgerald, supt. schools, Bristol, plans by George M. Cady, 210 Ayers Court, W. Englewood, N. J., 2 story brick, concrete school. $250,000.

S. D., Vermillion—MEDICAL and SCIENCE—State of South Dakota, c/o Dean W. Loucks, state engr., Capitol Bldg., Pierre, plans by Hugill, Blatherwick & Fritzel, engrs. and archts., 366 Boyce Greeley Bldg., Sioux Falls, 2 story, bsmt., brick, steel, medical and science bldg. $600,000. CD 3/17.

S. D., Yankton—WARD—State of South Dakota, c/o Dean W. Loucks, state engr., Capitol Bldg., Pierre, plans by Walter J. Dixon, engr. and archt., 200 Mitchell National Bank Bldg., Mitchell, remodel 3 story bsmt., brick, ward bldg. $400,000. CD 3/17.

Tex., Austin—COLD STORAGE PLANT—University of Texas, c/o Bd. Regents, Austin, cold storage plant, 1,800 ton capacity, cooling tower, three 600 ton centrifugal compressors, etc. $500,000. Zumwalt & Vinther, Mercantile Security Bldg., Dallas, consult. engrs. CD 8/16/44.

Tex., Dallas—SCHOOL—Dallas Independent School Dist. Dallas, plans by George L. Dahl, 1201 N. St. Paul St., school for "exceptional children" concrete beam fdn., at site of Rusk School. $350,000.

Tex., Kountze—HOSPITAL—Hardin Co., Kountze, voted bonds, hospital. $397,713. W. B. Livesay, San Jacinto Bldg., Beaumont, archt. CD 2/6.

Tex., Snyder—SCHOOLS—Snyder Independent School Dist., Snyder, plans by Buford & Feinberg, 1801 San Jacinto St., Dallas, elementary school, $250,000; grade school, $350,000. CD 9/30.

Tex., Vidor—SCHOOLS—Vidor Independent School Dist., Vidor, masonry high school, $250,000; masonry Junior High School, $250,000.

Tex., Waco—SCHOOLS—Waco Independent School Dist., Waco, plans by Spicer & Bush, Amicable Bldg., and Wilson & Patterson, Majestic Bldg., Fort Worth, grade or elementary school, $550,000; elementary school, Approx. $400,000. CD 2/8.

▲ **Tex., Ysleta**—SCHOOLS—Ysleta Independent School Dist., J. M. Hanka, supt., Ysleta, voted bonds, Ysleta School addn. 8,000 seat stadium addn., $275,000; Cadawallader School and North Loop area gymnasium, $250,000; Ascarate area school addn. $275,000; Junior High School, $250,000. CD 1/6.

Vt., Waterbury—EMPLOYEES—State of Vermont, Purch. Agt., State House, Montpelier, plans by Webber & Erickson, 56 Merchants Row, Rutland, 3 story, brick, steel, concrete male employees bldg., Waterbury State Hospital. $275,000. CD 11/31/47.

Va., Suffolk—HIGH SCHOOL—Suffolk School Bd., Suffolk, plans by Rudolph, Cooke & Vim Leeuwen, Arcade Bldg., Nortolk, Negro High School. $300,000-$500,000.

▲ **Wash., Vancouver** — HOUSING — Vancouver, Housing Auth., Vancouver, plans by D. W. Hilborn, Vancouver, 300 housing units. $2,400,000. CD 11/7.

W. Va., Glenville—GYMNASIUM—W. Va. Bd. Control, Glenville State College, Charleston, plans by Greife & Daley, Payne Bldg., Charleston, 2 story, 100x100 ft. brick gymnasium, $500,000.

W. Va., Morgantown—PHYSICS—W. Va. Bd. Control, University of W. Va., Morgantown, plans by Tucker & Silling, Masonic Bldg., Charleston, 4 story, bsmnt., steel, brick, limestone physics bldg. $500,000.

Alaska, Dillingham—SCHOOL—Town, school addn., remodeling. $250,000.

Alta., Lethbridge—TURBINE—City, installing electric turbine in power house, Approx. $270,000. A. L. H. Somerville, c/o owner, engr.

Que., Levis—POST OFFICE—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., plans by G. Brault, c/o owner, post office Approx. $300,000.

COMMERCIAL BUILDINGS

Ark., Camden—HOTEL—Owner, c/o Ed. Horton, Camden, 80-room modern hotel. $600,000.

Ark., Ft. Smith—HOSPITAL—St. Edwards Mercy Hospital, c/o Haralson & Mott, Merchants National Bank Bldg., hospital addn. Approx. $300,000. CD 1/9.

▲ **Calif., Palm Springs**—CLUB, etc.—Palm Valley Club, 3259 Wilshire Blvd., Los Angeles, plans by Heitschmidt & Matcham, 449 S. Beaudry St., Los Angeles, club, swimming pool, tennis courts, cottages, $2,000,000.

Calif., San Jose—RESIDENCES—John Den Beeman & Son, Box 281, 15 residences in Bell Ayre Manor Subdivision $250,000.

Conn., West Hartford—CHURCH—St. James Episcopal Parish, Douglas W. Kennedy, pastor, S. Main St., brick stone church, Farmington Ave. and Brace Rd. $250,000.

Conn., Manchester—HOUSING—Woodbridge Development, c/o J. Robinow, 843 Main St., frame houses, Woodbridge Acreage $250,000.

Fla., Miami—LABORATORY—Miami Heart Institute, c/o Robert Law Weed, archt., Dupont Bldg., laboratory $500,000.

Ga., Atlanta—OFFICE—Fireman's Fund Insurance Co. Hurt Bldg., office. $400,000.

Ga., Atlanta — CHURCH — Gordon Street Presbyterian Church, c/o Barili & Humphreys, Percy Perkins, Assoc. Forsyth Bldg., church. $350,000.

Ga., Atlanta—APARTMENT UNITS—Hardee Courts, c/o P. N. Wilkinson, archt., Western Union Bldg., 96 apartment units, $325,000.

Ga., Atlanta—APARTMENT—Owner, c/o John W. Cherry, archt., Candler Bldg., 6 story apartment, Lombardy Way. Approx. $250,000.

▲ **Ga., Atlanta**—APARTMENT UNITS—Wesley Heights, Inc., c/o P. N. Wilkinson, Western Union Bldg., 280 apartment units $1,000,000.

Ill. La Grange—CHURCH, etc.—First Methodist Church, Ashland Ave. and Crossett St., plans by Herbert A. Brand, 400 W. Madison St., Chicago, Zone 6, 1 story, Lannon stone church and auditorium, $250,000.

▲ **Ind., Fort Wayne**—HOSPITAL—E. F. Scheumann, pres. Lutheran Hospital Assn., 3024 Fairfield St., Lutheran Hospital addn. $1,000,000. CD 5/1/46.

La., Baton Rouge—CHURCH—First Baptist Church, c/o Turner & Dean, archts., 221 N. President St., church. $250,000.

Ky., Lexington—HOSPITAL—Good Samaritan Hospital, 210 S. Limestone St., plans by John Gillig, 180 Walnut St., 5 story, 48x120 ft., brick, concrete block, hospital addn. $450,000. CD 9/23.

Ky., Louisville—HOUSING—Highbaugh Mortgage Co., 509 W. Market St., Zone 2, one hundred twenty-five 25x28 ft., frame houses, Clara and Longfeld Ave. $812,500.

Ky., Louisville—SHOPPING CENTER—Suburban Stores, Inc., 1548 Bardstown Rd., plans by Fred Elswick, 304 Commerce Bldg., (1st unit), brick, shopping center, 3 St. Rd. and Southland Blvd. $400,000.

Md., Bladensburg—APARTMENTS—Kentwood Apts., Inc., 5200 Annapolis Rd. plans by Corning & Moore, 1726 M St. N. W., Wash., D. C., twenty 2 story, brick, cinder block, apartments. Landover Rd. and 76 Ave.

▲ **Md., Catonsville**—SCHOOL—St. Timothy's School, Miss Ella R. Watkins, St. Timothy's Lane, girl's school, 117 Greenspring Valley, Baltimore Co. $1,000,000.

Mass., Everett—CHURCH—St. Anthony's R.C. Parish, C. Martelliozzo, pastor, 38 Oakes St., plans by John Guarino, 2 Lexington St., East Boston, 1 story, bsmt., 110x145 ft., brick, steel, concrete church, Oakes St. $350,000.

Mass., Somerville—SCHOOL, etc.—St. Polycarp's R. C. Parish, T. F. Garrity, pastor, 100 Temple St., plans by F. D. Bulman, 258 Arborway, Jamaica Plain, 2 story, brick, concrete, parochial school-convent, Mystic Ave. $250,000. CD 2/9.

Minn., Hibbing—HOUSING—Hibbing Housing & Redevelopment Auth., 145 unit housing. Approx. $500,000.

Mo., Kansas City—HOTEL—H. J. Massman, 20 W. 9 St., Zone 6, plans by Gentry & Voskamp, 4 W. 13 St., Zone 6, hotel-business bldg., 13 and Wyandotte Sts. CD 2/2.

Neb., Hastings—DORMITORY—Hastings College, Hastings, dormitory. $275,000.

N. Y., Astoria—BANK—Astoria Federal Savings & Loan Assoc., 37-16 30 Ave., Long Island City, plans by A. L. Miller, c/o owner, 2 story bank, 30 Ave. west of 38 St. $300,000.

N. Y., Astoria—APARTMENTS—David Minkin, c/o Kavy & Kavovitt, Inc., archts., 44 Court St., Brooklyn, Zone 2, 3 story apartments, 19 St. and 21 Ave., $225,000; 3 story apartment, 21 Ave. between 19 St. and Shore Blvd. $690,800.

N. Y., Bayside—HOUSES—Fifth Arbor Oaks, Inc., c/o J. W. Burton, archt., 163-18 Jamaica Ave., Jamaica, 50 houses, bounded by Peck Ave., Grand Central Parkway, 82 and 85 Aves. $542,000.

N. Y., Brooklyn—COMMUNITY HOUSE—Jewish Community House of Bensonhurst, 7802-24 Bay Parkway Zone 14, plans by Leo V. Berger & William Klein, 356 Fulton St., Zone 1, altering 2 story community house at site. $300,000.

N. Y., Brooklyn—SCHOOL, etc.—Our Lady of Grace Parish, c/o Rev. Salvatore Cafiero, 501 Avenue W, Zone 23, plans by Anthony J. DePace, 151 W. 46 St., New York, Zone 19, 2 story school and auditorium, 385-407 Avenue W. $300,000.

N. Y., Flushing—APARTMENT—Auburndale Terrace, Inc., c/o Gustave Iser, archt., 109 E. 29 St., New York, Zone 16, 2 story garden apartment development, 170, 171, 172 Sts., and 39 Ave. $332,000.

N. Y., Flushing—APARTMENT—Sanford Gardens, c/o Seelig & Finkelstein, archts., 153 Pierrepont St., Brooklyn, Zone 2, 6 story apartment, Sanford Ave. near Parsons Blvd. $750,000.

N. Y., Forest Hills—APARTMENT—Breberg Development Corp., c/o A. H. Salkowitz, archt., 37-60 82 St., Jackson Heights, 6 story apartment, 113 St. and 75 Ave. $250,000.

N. Y., Hempstead—BUSINESS and BANKING—Hofstra College, 1000 Fulton Ave., plans by Aymar Embury II, 150 E. 61 St., New York, Zone 21, school of business and banking bldg. to be known as Heger Hall. $250,000.

N. Y., Jackson Heights—APARTMENT—Aljo Gardens, Inc., c/o Philip Birnbaum, archt., 303 W. 42St., New York, Zone 18, 6 story apartment, 77 St., south of 34 Ave. $975,000.

▲ **N. Y., Jackson Heights**—APARTMENTS—Geffree Realty Co., c/o H. I. Feldman, archt., 415 Lexington Ave., New York, Zone 17, two 6 story apartments, 35 Ave. between 88 and 89 Sts. $1,100,000.

▲ **N. Y., Jackson Heights**—APARTMENTS—Joseph Gerla and Charles S. Freeman, c/o H. I. Feldman, archt., 415 Lexington Ave., New York, Zone 17, two 6 story apartments, 35 Ave. between 85 and 86 Sts. and 35 Ave. between 86 and 87 Sts. $1,000,000.

N. Y., New York—APARTMENT—Gump-Tonstr. Corp., c/o H. I. Feldman, archt., 415 Lexington Ave., Zone 17, 6 story apartment, Mosholu Parkway South and Perry Ave. $300,000.

▲ **N. Y., New York**—APARTMENT—Fort Tryon Apartments, Inc., 4370 Broadway, Zone 23, plans by Gustave W. Iser, 109 E. 29 St., Zone 16, apartment, 245 303 Bennett Ave. and 4489-4521 Broadway. $1,500,000.

▲ **N. Y., New York**—ENGINEERING AND SCIENCE—Manhattan College, Spuyten Duyvil Parkway and W. 242 St., Zone 63, plans by Eggers & Higgins, 542 5 Ave., Zone 19, 4 story engineering bldg. $1,000,000, and science bldg. $1,000,000, on campus.

N. Y., New York—APARTMENT—305 W. 18 St. Corp., 212 E. 148 St., Zone 51, plans by H. Herbert Lilien, 201 W. 72 St., Zone 23, 6 story apartment, 305 W. 18 St. $350,000.

N. Y., New York—APARTMENT—235 East 36 Street Corp., 12 E. 41 St., Zone 17, plans by Oscar I. Silverstone, 153 Pierrepont St., Brooklyn, Zone 2, 6 story apartment, 229-35 E. 36 St. $500,000.

N. Y., New York—APARTMENT—2230 University Ave. Corp., 250 W. 57 St., Zone 19, plans by J. M. Felson, 250 W. 57 St., Zone 19, 6 story apartment, University Ave. and 183 St. $375,000.

N. Y., Queens Village—APARTMENT—Gold Seal Building Corp., c/o Schulman & Soloway, archts., 4 Court Square, Brooklyn, Zone 2, two 3 story and two 2 story apartments, 218 St., Hillside and Spencer Aves. $840,000.

O., Cincinnati—HOTEL—Amity Hotel, c/o Max Eaton and Ray Moss, 7733 Reading Rd., 2 story, bsmnt, brick hotel.

O., Cincinnati—HOTEL—Queens Arms Hotel, c/o L. B. Kuhlman, 434 Ludlow Ave., plans by James E. Allen, 914 Main St., 8 or 9 story, bsmnt, brick hotel, Vine St.

O., Cincinnati—RESIDENCES—Valley Pre-fabricated Mfg. Co., 3085 Reading Rd., Sharonville, fifty 1 story, no bsmnt, 24x30 ft. frame residences. (Stratmore Homes), Sycamore Twp. $400,000.

▲ **O., Cleveland**—CONVALESCENT HOME—Singleton's Convalescent Home, 1867 E. 82 St., plans by J. J. Collins, 715 Sweetland Bldg., 3 story, 90x142 ft. east wing 44x90 ft. brick, steel convalescent home. $1,000,000. CD 10/28/48.

O., Dayton—YOUTH CENTER—St. Paul Lutheran Church, c/o Rev. D. H. Fredrick, 235 Wayne St., plans by W. Ray Yount, 3rd Natl. Bldg., youth center. $250,000.

Pa., Phila.—STORE—Sylvan S. Levy 1636 Walnut St., plans by Harold G. Wilson, 125 Coulter Ave., Ardmore, store development, Chestnut Hill sect. $300,000.

Pa., Phila.—DEPARTMENT STORE—Oppenheim Collins & Co., 35 W. 34 St., New York, N. Y., plans by Adolph Novak, 82 Beaver St., New York, N. Y. department store alterations, addns. Approx. $250,000.

Pa., Pittsburgh—HOME FOR AGED—Baptist Home & Orphanage Society, Castle Shannon Blvd., plans by Sterling & Wolfe, 119 E. Montgomery Ave., 3 story, bsmnt., brick on tile home for aged addn., Castle Shannon Blvd., Mt. Lebanon Twp. $250,000.

Pa, Pittsburgh—SCHOOL—St. Augustine's Roman Catholic Church, 220 37 St., plans by Casmir J. Pelligrini, 6437 Monitor St., 1 and 2 story, brick, tile parochial school, Butler St. $300,000.

R. I., Woonsocket—CHURCH—First Universalist Parish 78 Earle St., plans by Cram & Ferguson, 248 Boylston St., Boston, Mass., 1 story, bsmnt, brick, stone, concrete church, Earle St. $250,000.

▲ **Tenn., Memphis**—HOSPITAL—The LeBonheur Childrens Hospital, c/o J. Frazer Smith, Inc., archt., Goodwyn Inst. Bldg., hospital. $1,860,000.

Tex., Amarillo—DUPLEXES—William C. Schutts, Amarillo, Sect. 1, 35 brick veneer duplexes, concrete slab fdn., adjacent Wolfin Park., $456,925; Sect. 2, 37 brick veneer duplexes, concrete slab fdn., $483,035.

Tex., Austin—STUDENT CENTER—Wesley Foundation, c/o Dr. C. W. Hall, Congress Ave., masonry student center. $450,000.

Tex., Fort Worth—RESIDENCES—C. Allen True, Box 3135, 45 frame residences, concrete slab fdn., in Truesdale Addn. $275,000.

Tex., Houston—HOUSING—East End Development Co., 3908 Main St., plans by F. Perry Johnston, 3908 Main St., frame housing concrete slab fdn. $250,000.

▲ **Tex., Houston**—DWELLINGS—Fairworth Co., c/o Malcolm McCulloch, 2 North Blvd., plans by J. B. Dannenbaum, 3940 Main St., 260 dwellings, Hidalgo, Navarro, Val Verde and Lampasas Sts., $2,750,000; 250 dwellings Dolores and Bosque Sts., Richmond Ave. and McCulloch Circle, $2,250,000; 50 dwellings, Fayette and Kleberg Sts., $375,000; shopping center, Westheimer Rd., $475,000, all near Bellaire.

▲ **Tex., Houston**—OFFICE—Jesse H. Jones, Chronicle Bldg., plans by A. C. Finn & R. J. Cummins, Bakers Mtg. Bldg., 16 story, steel, brick, stone office, $3,000,000. Reg. F. Taylor, Bankers Mtg. Bldg., mech. engr. CD 12/5.

Tex., Houston—OFFICE—Mutrie Dry Goods Co., 409 Fannin St., plans by Garrison King, 4615 Fannin St., converting existing 4 story bsmnt., mercantile bldg. into offices. $250,000.

▲ **Tex., Houston**—DWELLINGS—Master Craftsman, Inc., c/o Frank E. Bonner, 2436 Bissonet St., 32 frame, cedar shakes, brick, stone dwellings, concrete slab fdn., north of Richmond Rd. $480,000; 32 addnl. cedar shakes, frame, brick, stone dwellings, concrete slab fdn., attic ventilation, off S. A. & A. P. Ry. tracks and east of Wesleyan Rd. $475,000; 180x950 ft. masonry shopping center, Wesleyan Rd. opposite new school. $250,000. R. C. Shaver, c/o owner, engr.

Tex., Houston—CHURCH—Park Memorial Baptist Church, 1019 Lyside St., plans by Sam H. Dixon, Jr., 2265 Bellaire Blvd., 3 story brick, masonry, steel church, 1,400 seating capacity. $700,000.

▲ **Tex., Houston**—BANK OFFICE—South Texas National Bank, 213 Main St., bank and office, Polk, Main and Travis Sts. Approx. $1,500,000.

▲ **Tex., Houston**—DWELLINGS—Suburban Homes Realty Co., 9102 Humble Rd., 300 dwellings, concrete fdn., Little York Rd. north of Parker and Bauman Rds. $1,800,000. Edminster Eng. Co., 5410 Kirby Dr., consult. engr.

Tex., Houston—COMMERCIAL—Wals Transfer & Storage Co., 812 Live Oak St., up to 5 story commercial bldg. on adjacent frontage of old Coca Cola plant. $250,000.

▲ **Tex., Pasadena**—DWELLINGS—C. O. Beeler Lumber Co., Inc., 2300 Pease St., Houston, plans 150 dwellings on 399 acre site. $1,000,000. H. J. Johnson, 5717 Kirby Dr., Houston, consult. engr.

Tex., San Antonio—SHOPPING CENTER—E. J. Burke & Sons, 4220 S. Zarzamora St., plans by Bartlett Cocke, 3501 Broadway, masonry shopping center units, off New Braunfels Ave., in Sunset Ridge Apartments zone. $300,000.

Tex., San Antonio—STORE, etc.—Handy-Andy Community Stores, Inc., 801 N. Cherry St., plans by Shoop & Roberts, 122 Olmos Dr. West, 20,000 sq. ft., masonry, store and supermarket, concrete slab fdn. and frame, in Alamo Heights. $250,000. W. E. Simpson Co., 945 Milam Bldg., consult. engr.

Tex., Taylor—HOUSING—John O. Baker, Sr. and John Baker, Jr., Taylor, frame Negro housing, southeast sect. of city. $250,000.

Wis., Milwaukee—CHURCH—Our Saviours Lutheran Congregation 1214 S. 9 St., Zone 4, revised plans by H. C. Haeuser, 2051 W. Wisconsin Ave., Zone 3, 1250 seating church. $500,000. CD 3/1/46.

Ont., Hamilton—BANK—Bank of Nova Scotia, 39 Melinda St., Toronto, bank. $250,000.

▲ **Ont., Toronto**—OFFICE—Crown Life Insurance Co., Yonge and Colborne Sts., head office, Bloor W. and Church Sts. Approx. $3,000,000.

INDUSTRIAL BUILDINGS

Ala., Demopolis—MILL—Vanity Fair Mills, Inc., Gordon, near Buttonwood, Reading, Pa., mill, $500,000.

Conn., Norwalk—FACTORY, etc.—Jerkin-Elmer Corp., c/o Fletcher-Thomason, Inc., archt., 211 State St., factory and laboratory for optical and astronomical instruments, on 20 acre tract on Route 7, $500,000.

▲ **Ga., Hartwell**—PLANT—Monroe Auto Equipment Co., Monroe, Mich., mfg. plant. Approx. $2,000,000.

▲ **Ga., Macon**—MILL—Ralston Purina Co., 205 E. 42 St., New York 17, N. Y., livestock and poultry feed mill, $1,000,000.

Ind., New Albany—WAREHOUSE, etc.—Gunnison Homes, Inc., Charlestown Rd., plans by Hawkins & Walker, 218 Elsby Bldg., 1 story, 180x480 ft. structural steel, warehouse and assembly bldg. $150,000.

Ia., Danbury—GARAGE—Barry Motor Co., Danbury, garage. $100,000.

Ia., Jefferson—GRAIN ELEVATOR—Milligan Elevator Co., Jefferson, grain elevator, $150,000.

Ky., Campbellsville—FACTORY—Union Underwear Co., 4707 Empire State Bldg., New York, N. Y., plans by Joseph & Joseph, Speed Bldg., Louisville, factory, $320,000.

Mich., Dearborn—STYLING—Ford Motor Co., Oakwood Blvd., plans by Voorhees, Walker, Foley & Smith, 101 Park Ave., New York, N. Y., 2 story, approx. 250x400 ft., brick, rein.-con., steel styling bldg. of Engineering Center Group, Oakwood Blvd. CD 6/7/46.

▲ **Minn., Hopkins**—REPAIR PARTS DEPOT, etc.—Minneapolis Moline Co., W. C. MacFarlane, pres., repair parts depot, $1,500,000, headquarters bldg. $300,000.

Miss., Jackson—WAREHOUSE, etc.—Seven-Day Grocery Co., c/o Biggs, Weir & Chandler, archts., 224 N. Congress St., Jackson, warehouse and office, $175,000.

Neb., Blair—PLANT—Kelly Ryan Equipment Co., Blair, plant. $100,000.

N. Y., Long Island City—GARAGE—Harry & Esther Rosen, c/o Jacob Berman, archt., 24-16 Bridge Plaza South, story 150x200 ft. garage, 38 Ave. between 22 and 23 Sts. $100,000.

N. Y., New York—FACTORY, etc.—1991 Corporation, 383 Madison Ave., Zone 17, plans by Rudolph C. F. Boehler, c/o owner, altering factory and warehouse, 600-630 W. 28 St. $250,000.

N. Y., Ridgewood—FACTORY—Eastern Tube & Tool Co., 594 Johnson Ave., Brooklyn, Zone 6, plans by Joseph Rosen, c/o owner, 1 story, 227x253 ft. factory, Onderdonk Ave., east of Metropolitan Ave. $350,000.

N. D., Portland—GRAIN ELEVATOR—Farmers Union, Portland, grain elevator. $125,000.

O., Cleveland—STORAGE, etc.—Standard Tool Co., 6918 Central Ave., 2 story, bsmnt., brick, concrete, steel storage and office bldg. Chester Ave. and E. 40 St. $500,000.

O., Jackson—FACTORY—Hercules Trouser Co., 570 S. Front St., Columbus, factory. $125,000.

Tex., Dallas—WAREHOUSE, SHOP—Texas Bitulithic Co., 111 Commerce St., warehouse, Irvington Blvd., $100,000; general machinery and equip. repair shop, $90,000.

Tex., Galveston—WAREHOUSE, etc.—Galveston Wharves, Inc., 2324 Strand St., plans by E. H. Thornton, 2324 Strand St., warehouse units, $350,000; refrigeration and cold storage, $200,000.

Tex., Houston—AUTO SERVICE, etc.—Downtown Chevrolet Co. of Houston, 400 McKinney St., hollow tile, brick, auto service, shop, sales, La Branch St. between McKinney and Lamar Sts. $185,000.

Ont., Hamilton—PLANT—Taylor Forge & Pipe Works of Canada Ltd., Hamilton, plans by J. D. Kyles, 136 James St. S., first unit large plant program on north side of Beach Rd., Approx. $300,000.

UNCLASSIFIED

Calif., Montebello—TRAFFIC SIGNALS, etc.—City, voted bonds, traffic signals, $50,000, playgrounds $175,000. John L. Cole, city engr.

Ill., Chicago—FIELD HOUSE, etc.—Chicago Park Dist., 425 E. 14 St., Zone 5, plans by Charles W. Schroeder, c/o owner, field house and bath house, 95 and State Sts. $250,000. CD 5/2/45.

▲ **Ill., Chicago**—FIELD HOUSE, etc.—Chicago Park Dist., 425 E. 14 St., Zone 5, plans by Shaw, Metz & Dolle, 208 S. La Salle St., Zone 4, field house, Foster Park, 83 and Loomis St., $400,000; plans by Charles W. Schroeder, c/o owner, 1 story, concrete, brick field house, 31 and Tripp Sts., $600,000; 1 story, concrete, brick bath house on Northerly Island, $250,000. CD 6/11/45.

Ia., Waterloo—SWIMMING POOLS—City Planning Comn., Waterloo, plans by Flinn & Saito, Lafayette Bldg., swimming pools, Byrnes and Gates Parks, $150,000 each. CD 9/28/44.

Mass., Agawam—PARK IMPRVS.—Commonwealth of Mass., Dpt. Conservation, 15 Ashburton Pl., Boston, plans by James A. Britton, 20 Federal St., Greefield, rein.-con. swimming pool, bathhouses, $50,000; plans by Stewart Assoc., Inc., 38 Memorial Dr., Cambridge, park expansion and imprvs., $150,000. Robinson State Park.

Miss., Waynesboro—LIVESTOCK BLDG.—Wayne Co. Fair Assn., Jim West, pres., Waynesboro, livestock bldg., $100,000.

▲ **Missouri**—RURAL DISTRIBUTION LINES—North West Electric Power Co-operative, Savannah, 257 mi. 157 kv. and 505 mi. 69 kv. rural distr. lines, 40,000 kv. steam generating plant, near Missouri City, $18,393,000.

Nebraska and Iowa—TRAIN ROUTING SYSTEM—Chicago, Burlington & Quincy R.R. Co., C. C. Robnett, asst. ch. engr. (lines west of Missouri River) 201 N. 7 St., Lincoln, Neb., exten. switchboard train routing sys. between Pacific Junction, Iowa and Lincoln, Neb. $700,000.

▲ **New Mexico**—RURAL DISTRIBUTION LINES—Farmers Electric Co-operative, Inc., Clovis, plans by Carl G. Cox, 319 Oliver-Eakle Bldg., Amarillo, Tex., rural distr. lines and sys. imprvs., incl. 88 mi. 66 kv transmission lines, Curry Co. $2,275,000. CD 1/9.

▲ **North Dakota**—RURAL DISTRIBUTION LINES—The Verendrye Electric Co-operative, Velva, 689 mi. rural distr. lines, completion previously approved construction and 69 mi. transmission lines, $1,415,000. Banister Eng. Co., 4549 University Ave., St. Paul, Minn., consult. engr.

▲ **O., Cleveland**—PARKS, etc.—City, City Hall, Lakeside and 6 St., rehabilitation all parks in city, $715,000, Tom Jones—City Hall, comm. of design and constr. of city parks; plans by Conrad, Hayes, Simpson & Ruth, 1110 Hanna Bldg.; Otter and Beaver bridge and other bldgs. at Cleveland Zoo, $300,000; playground sites and fixing of said sites, $1,100,000. CD 11/21.

O., Oxford—STADIUM—Dpt. P. Wks., S. O. Linzell, dir., Office Bldg., S. Front St., Columbus, concrete steel grandstand, stadium, athletic field; plans by C. F. Cellarius, 906 St. Paul Bldg., 11 E. 4 St., Cincinnati, 2 story, brick, concrete natatorium, campus of Miami University, $500,000.

▲ **Oklahoma**—RURAL DISTRIBUTION LINES, etc.—Western Electric Co-operative, Hollis, 877 mi. 69 kv. rural distr. lines and 13 new distribution sub-stations, Caddo and Comanche Counties, 10,000 kw. steam generating plant near Anadarko, $12,555,000.

Pa., Millersville—ELECTRICAL DISTRIBUTION SYSTEM—General State Auth., 13 and Herr Sts., Harrisburg, electrical distr. sys. at Millersville State Teachers College, $167,000. Gatter & Diehl, 321 N. Front St., Harrisburg, consult. engrs.; A. F. Jones, c/o owner, ch. engr. CD 12/12.

▲ **Tenn., Memphis**—MOTOR COURT—Clyde H. Gilliland, Sr., c/o Robert Thomas Martin, archt., Baltimore Bldg., motor court, $1,000,000. CD 2/10.

Tenn., Memphis—MOTOR COURT—J. H. Tharp, c/o Raymond B. Spencer & Assoc., archts., 1st. Natl. Bank Bldg., motor court, $200,000.

Tenn., Memphis—DRIVE-IN THEATER—Kemmons Wilson, 4985 Summer Ave., drive-in theater, $100,000.

Tex., El Campo—SUBDIVISION DEVELOPMENT—Tom D. Henderson, El Paso, water lines, sanitary sewers, gas mains, electric lines, streets, 27 acre sub-division utilities development, $100,000.

Tex., Galveston—WHARVES, etc.—Galveston Wharves, Inc., 2324 Strand St., plans by E. M. Thornton, 2324 Strand St., rehabilitation and new wharves, $500,000; rehabilitation and new docks, $450,000.

Tex., Kingsville—STADIUM—Texas College of Arts & Industries, Kingsville, plans by Phelps & De Wees & Simmons, 1501 Majestic Bldg., San Antonio, stadium, $200,000.

Tex., Snyder—GATHERING SYSTEM—Gulf Oil Corp., Gulf Bldg., Houston, 33 mi. 10 and 8 in. crude oil line, in Roscoe area, $528,000.

Tex., Snyder—OIL PIPE LINE—Pasotex Oil Co., Snyder, 22½ mi. 8 in. crude oil pipe line parallels existing 6 in. line from pool to near China, $300,000.

Ont., Galt—PARK BLDGS.—South Waterloo Agricultural Society, H. Elliott, secy., Galt, exhibit bldgs., stables, cattle show bldgs. at Dickson Park, $300,000.

Ont., London—STREET LIGHTS—Utilities Comn., E. V. Buchanan, genl. mgr., replacing street lights with modern type equip., $125,000.

Ont., Ottawa—SKATING RINK—Minto Skating Club, 74 George St., plans by C. Burgess, 53 Queen St., skating rink, Henderson Ave. between Templeton St. and Main Ave. Approx. $300,000.

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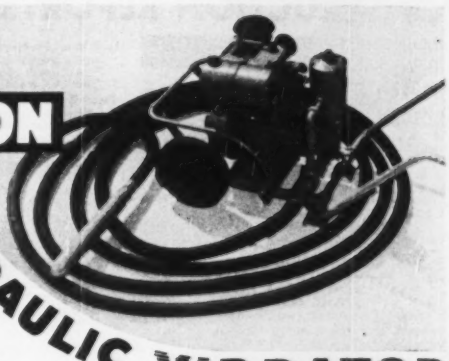

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CONSTRUCTION REPORTS Second Section

WATER SUPPLY

BIDS ASKED

Ont., Ottawa—B.A. 3/7—Chairman Bd. Control, c/o City, Transportation Bldg., installing 48 in. pipe line incl. excav. and back filling, railroad crossing structures, concrete work, etc. $350,000. W. E. MacDonald, c/o owner, engr. CD 8/24.

Tex., Beaumont—B.A. 3/10—City, modernization, imprvs. to original city pumping plant, $80,000. Freese & Nichols, 407 Danciger Bldg., Ft. Worth, engrs. CD 8/26.

N. J., East Orange—B.A. 3/13—Bd. Water Comrs.; City Hall, mechanical imprvs. to White Oak Ridge Pumping Station, incl. Sect. A, pumping equip. and structures; Sect. B, electrical equipment and wiring; Sect. C, heating Sect. D, plumbing. Plans deposit $25. Buck, Seifert & Jost, 112 E. 19 St., New York 3, N. Y., consult. engrs.

Tex., Beaumont—B.A. 3/14—Lamar Combs, city clk., Beaumont, WW imprvs, incl. main pump. station bldg. imprv. $45,000. Plans deposit $10. Freese & Nichols, 407 Danciger Bldg., Ft. Worth, engr. CD 12/15/48.

Tex., Houston—Bids Asked—Fairworth Co., c/o Malcolm McCulloch, 1932 North Blvd., water lines, in area of Lamar Terrace, between Westheimer Rd. and city of Bellaire. $40,000. J. B. Dannenbaum, 3940 Main St., engr.

Tex., Houston—Bids Asked—Master Craftsman, Inc., c/o Frank E. Bonner, pres., 2436 Bissonet St., water lines, facilities on 20 acre tract, adjacent to Wesleyan addn. near W. University Pl. $35,000. R. C. Shaver, c/o owner, engr.

Tex., Houston—Bids Asked—Suburban Homes Realty Co., 9102 Humble Rd., water lines, off Little York, Parker and Bauman Rds. $10,000. Edminster Eng. Co., 5410 Kirby Dr., engr.

LOW BIDDERS

Ala., Austinville—City, Feb. 15, WW imprvs., from P. A. Buchanan Contg. Co., 630 Woodland Ave. S. W., Birmingham, $53,924. CD 2/1.

Calif., San Jose—San Jose Water Works, 374 W. Santa Clara St., Feb. 15, Austrian Dam 7 mi. south on Los Gatos Creek 1,000 ft. downstream from Austrian, near here, from Earl Heple, 494 Deimas Ave., $663,480. CD 10/3/47.

Tex., Burnet—City, Feb. 23, 250,000 gal. elevated steel water reservoir, exclusive of concrete fdn., from Wyatt Metal & Boiler Works, Box 3052, Houston, $28,448. Est. $45,000. The Marvin Turner Engineers, Nalle Bldg. Annex, Austin, engrs.

Tex., Galveston—City, Feb. 17, WW imprvs., in Lindale Park addn.; lines, etc., Proposal 3, from Farnsworth & Chambers Constr. Co., Box 74, Houston, $35,346. Est. $35,000. Freese, Nicols & Turner, 2111 Natl. Standard Bldg., engrs.

Tex., Lamarque—Galveston Co., Courthouse, Feb. 9, elevated steel tank and tower, water supply well, from Texas Gulf Constr. Co., 2008 S. Wayside St., Houston, $41,145. Est. $60,000. CD 12/20.

CONTRACTS AWARDED

La., Gretna—East Jefferson Waterworks Dist. 1, Jefferson Hy. and Arnoult Rd.; Jefferson Parish, water purification plant addns., to Keller Constr. Corp., 7900 Palm St., New Orleans. $697,000. Bids 2/2, awarded 2/10. CD 2/10, under LB.

N. Y., Rochester—Fred W. Ereth, purch. agt., City Hall, No. 23 S. Fitzhugh St., 47,380 lin. ft. 24 to 48-in. pipe fittings for addnl. water supply, to Price Bros. Co., 1942 E. Monument St., Dayton, O., $909,031. Bids 2/14. CD 1/27.

Tex., McGregor—City, WW sys. exten., imprvs.; Purchase and Hire. Approx. $40,000. A. C. Amsler, city engr.

Wash., Kennewick—City, City Hall, filling, constr. filter bed, pump and sump control houses and piping and installing 3,800 ft. c.i. pipe, portion of $700,000 water sys. imprvt. program, to Miller & Hitchman, 3455 B. St., Salem, Ore., $96,524. Bids 2/7. CD 1/30.

SEWERS, WASTE DISPOSAL

BIDS ASKED

N. Y., New York—B.A. 3/7—Dpt. P. Wks., Municipal Bldg., Zone 7, Hunts Point Sewage Treatment Works, Contr. 1A, Hunts Point intercepting sewers. Plans deposit $25; Contr. 2A, Bronx River Siphon, an uptake and downtake shaft and an 84 in. diameter sewer crossing under the Bronx River, connecting two sects. of intercepting sewers. Plans deposit $10. CD 3/22/43.

N. Y., Liberty—B.A. 3/9—Town Bd. at office Whitaker Wells, clk.; Sherwood Bldg., Contr. 1, sewerage sys. incl. 21,000 lin. ft. 8- to 10-in. sewers, 78 manholes, etc.; Contr. 2, sewage treatment plant, incl. control bldg. with pump station and chlorinator; primary and secondary settling tanks, primary and secondary trickling filters, sludge digester, sludge drying beds, manhole, piping, etc. Plans deposit $12 for Contr. 1, $30 for Contr 2. Nial Sherwood, Sherwood Bldg., consult. engr.

Tex., Brackettville—B.A. 3/10—City, sanitary sewer collection sys. $260,000. Alamo City Engineers, 3005 Transit Tower, San Antonio, engrs. CD 2/13.

La., Ville Platte—B.A. 3/14—Town, Town Hall, enlarging disposal plant, sewer lines and pump, stations. Plans deposit $5. Pan-American Engineers, 1418 Third St., Alexandria, engrs. CD 9/12/45.

Tex., Dickinson—B.A. 3/15—Galveston County Water Control & Imprvt. Dist. 1, A. J. Dues, Dickinson, lift station, sewage treatment plant, $60,000. Plans deposit $15. Joe J. Rady, 811 American Fidelity Bldg., Fort Worth, engr. CD 5/16/47.

▲ **O., Akron**—Bids Asked—M. L. Davis, serv. dir., Akron, incinerator bldg. at Botzum Sewage Disposal Plant, Botzum, $1,000,000. Wendell LaDue, city sewer and water supt. CD 10/6/43.

Tex., Houston—Bids Asked—Ayrshire Corp., 6825 Academy St., sanitary and storm sewers, Sect. 7, Ayreshire Village. $60,000.

Tex., Houston—Bids Asked—Fairworth Co. c/o Malcolm McCulloch, 1932 North Blvd., sanitary sewers, $50,000; storm sewers, $60,000 in area of Lamar Terrace between Westheimer Rd. and city of Bellaire. J. B. Dannenbaum, 3940 Main St., engr.

Tex., Houston—Bids Asked—Master Craftsman, Inc., c/o Frank E. Bonner, pres., 2436 Bissonet St., sanitary and storm sewers, adjacent to Wesleyan Addn. near W. University Pl. $60,000. R. C. Shaver, c/o owner, engr.

Tex., Houston—Bids Asked—Suburban Homes Realty Co., 9102 Humble Rd., sanitary sewer lines, disposal plant off Little York, Parker and Bauman Rds. $60,000. Edminster Eng. Co., 5410 Kirby Dr., engr.

LOW BIDDERS

Calif., Visalia—City, City Hall, Feb. 16, sewage treatment plant addns., from Dahs Constr. Co., 355 Thorne Ave., Fresno, $213,300. CD 2/7.

Tex., Dallas—City, City Hall, Main and Harwood Sts., Feb. 14, sanitary sewers and branch main, North Fork of Knights Branch, from P. C. Sorenson, Southland Life Bldg., $71,106. CD 2/3.

Tex., Houston—City, City Hall, 900 Brazos St., Feb. 15, Sect. 6, South End Sanitary Sewer, 5,800 lin. ft. 56 in. rein.-con. pipe, from 20 to 22 ft. deep, from J. G. Holland Constr. Co., 1602 Old Spanish Trail, $182,831. Est. $255,000. CD 2/1.

Tex., Houston—City, City Hall, 900 Brazos St., Feb. 8, drainage, incl. 36- to 72-i. storm sewer trunk line in north sect. of field to drain airport administration bldg., from Russ Mitchell, Inc., 5304 Old Spanish Trail Rd., $757,728. Est. $670,000. CD 1/24.

Tex., Lamarque—Galveston Co., Courthouse, Galveston, Feb 9, sewage disposal plant in connection proposed hospital, from Texas Gulf Constr. Co., 2008 S. Wayside St., Houston, $56,601. Est. $50,000. CD 12/20.

CONTRACTS AWARDED

Calif., Pixley—Pixley Public Utility Dist., Pixley sewage disposal plant, to Kovick Bros. Constr. Co., Box 1323 Fresno, $54,633; sewerage sys., to O. R. Dahms Constr. Co., Box 1143, Sacramento, $72,106. CD 2/8, under LB.

S. D., Irene—City, collection sys. and plant, to Koenig Bros., Webster, $72,463. Bids 2/1. K. E. Benson, Sioux Falls, engr.

Wash., Bremerton—City, City Hall, 5,619 ft.* 20 in. c.i. sewers southwest from city limits to Lent's, 279 4 St., $74,554. J. W. Carey & Assoc., 1917 1 Ave., Seattle, Zone 1, engrs. CD 12/16.

Ont., Scarborough—A. W. Farlinger Real Estate, 2000 Yonge St., Toronto, supplying, installing sewers mains in Fairmount Park Subdivision, Pharmacy Ave., to Yearly & Reed Ltd., 301 Cedarvale Ave., Toronto. Approx. $80,000. Bids 2/13. CD 2/3.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

March 9	March 15
Kansas	California
March 10	Delaware
Kansas	

LOW BIDDERS

Iowa—State Hy. Comn., Ames, Feb. 14, 30x50 ft. 1-beam bridge and 26x180 ft. continuous I-beam bridge, relocation of Iowa 60 southwest of Cincinnati, in Sects. 8 and 18-67-18, F-281 (4). Appanoose Co. from Cunningham-Reis Co., 421 Liberty Bldg., Des Moines, $73,098***50 ft. skew I-beam bridge, Iowa 4 at Railroad Creek crossing in Cherokee, U-596 (5) Cherokee Co., from F. E. Lauritsen, 2346 Amherst St., Des Moines, $56,446***5 rein. con. box culverts, 21x38 ft. continuous concrete slab bridge, three 30x50 ft. and two 20x32 ft. I-beam bridges, Primary Rd. from Terril north to Iowa 9, F-905 (1), Dickinson Co., from John Hyman & Sons, Hull, $87,721***22x150 ft. and 20x320 ft. continuous I-beam bridges on Co. Trunk Rd. S. at Deer Creek Crossing in Sect. 20-78-30 and at South Racoon River Crossing in Sect. 5-78-30, Guthrie Co., Group 2, from Schroyer Constr. Co., Newton, $60,888*** 2 rein.-con. box culverts, extens. also 22x320 ft. continuous I-beam bridge various locations on Co. Trunk Rd. D from S. W. corner S. E. ¼ S. E. ¼ Sect. 22-77-15, north to U. S. 63, S-1243 (1), Mahaska Co., from Hanson Constr. Co., Washington, $70,187*** 20x240 ft., continuous I-beam bridge, Co. Trunk Rd. J at West Nishnabotna River Crossing between Sect. 3 and 10-78-39, SN-1635, Shelby Co., from Western Eng. Co., Harlan, $57,547***two 30x40 ft. skew I-beam bridges Iowa 50 west of Lehigh between Sects. 5 and 8-8-28 and between Sects. 4 and 9-87-28 F 270 (2), Webster Co., from F. O. Montgomery Co., Humboldt, $50,880. CD 2/1.

Michigan—State Hy. Dpt., Lansing, Feb. 16, bridge carrying U. S. 31, (relocated) over Boardman River in Traverse City, UBI of 28-S-17, CI (U-18-S1), Grand Traverse Co., from Getsman Bros., South Haven, $173,-658***bridge and 0.593 mi. approaches on M-65 crossing Johnson Creek 2.1 mi. south of Whittemore, S. S. B1 of 35-4-1, C2 (S-40 (5)), S. S. 35-14 C4, Iosco Co., from Johnson-Greene Co., Ann Arbor, $77,230 ***bridge over John C. Lodge Expressway north of Holden Ave., in Detroit, bridge carrying Junction Ave. over Edsel Ford Expressway in Detroit, U 1 B43 of 82-22-10, CI (U-391-101) Wayne Co., from Louis Garavaglia, 17363 Northlawn St., Centerline, $234,043. CD 1-31.

Pennsylvania—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg, Feb. 23, construct substructurs of bridge to carry Western exten. of Pennsylvania Turnpike over the Allegheny River, 0.4356 mi. Sect. 314B, Harmar and Plumb Twps., Allegheny Co., from Cravo Corp., Neville Island, Pittsburgh, $914,814. CD 2/7.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

March	March 13
Maryland	Connecticut
Massachusetts	March 15
March 9	California
Kansas	Delaware
March 10	March 16
Kansas	California
Pennsylvania	March 17
	Pennsylvania

† **Alaska**—B.A. 3/15—Alaska Road Comn., Federal and Territorial Bldg., Juneau, imprv. 49 mi. Sect. F of Richardson Hy. Approx. $50,000. G. M. Tapley, ch. engr. CD 8/17/45.

Tex., Houston—Bids Asked—Ayrshire Corp., 6825 Academy St., street constr., asph. paving Sect. 7, Ayrshire Village. $60,000.

Tex., Houston—Bids Asked—Fairworth Co., c/o Malcolm McCulloch, 1932 North Blvd., street constr., asph. paving in Lamar Terrace between Westheimer Rd. and city of Bellaire. $75,000. J. B. Dannenbaum, 3940 Main St., engr.

Tex., Houston—Bids Asked—Master Craftsman, Inc., c/o Frank E. Bonner, pres., 436 Bissonet St., street constr., asph. paving, adjacent to Wesleyan Addn. near W. University Pl. $60,000. R. C. Shaver, c/o owner, engr.

Tex., Houston—Bids Asked—Suburban Homes Realty Co., 9102 Humble Rd., construct and paving of streets, off Little York, Parker and Bauman Rds. $50,000. Edminister Eng. Co., 5410 Kirby Dr., engr.

LOW BIDDERS

California—State Div. Hys., Sacramento, Feb. 15, plant mix surf. 4 mi. Brundage Lane between Union Ave. and Fairfax Rd., Kern Co., from Oilfields Trucking & Phoenix Constr. Co., Box 906, Bakersfield, $130,-254; road mix on cement treated imported base material surf. 6 mi. Lovers Lane between State Rt. 134 and 6 mi. north, Tulare Co from George E. France, Box 831, Visalia, $123,805. CD 1/23.

Calif., Daly City—City, City Hall, Feb. 14, imprv. Bellevue Ave. and Whittier St. to Gutenberg St., etc., from The Foy Improvt. Co., 760 Market St., San Francisco, $101,913. R. A. Klassen, 2382 Broadway, Redwood City, engr.

Colorado—State Hy. Dpt., Denver, Feb. 15, stabilizing, surf. and asph. surf. penetration 5.824 mi. State Hy. 109 between La Junta and Cheraw, Colo. Proj. S-0017 (1) 1 Otero Co., from Blanchard Brothers, 56 and Holly Sts., Denver, $55,583, Est. $71,706. CD 2/3.

Delaware—State Hy. Dpt., Dover, Feb. 8, stabilized resurf., wid'n. 4.108 mi. Harrington to Farmington, Contr. 1039 Kent Co., and four ft. wid'n. resurf. Laurel to Hardscrabble Contr. 1040, from George & Lynch, Delaware Trust Bldg., Wilmington, $122,731 and $262,786 respectively 6 ft. wid'n. resurf. 112.172 mi. Laurel to Mission Contr. 1001, Sussex Co., from Standard Bitulithic Co., foot of Brill St., Newark, N. J., $571,635. CD 1/20.

Fla., Miami—City, Feb. 15, sidewalk imprvs. Projects SK-126, SK-133 and SK-142, from Belcher Oil Co., 1217 Biscayne Blvd. $317,262. CD 2/9.

Ill., Chicago—City, City Hall, Zone 2, Feb. 17, paving W. 51 St. from S. Kedzie to Western Aves., from Leininger Constr. Co., 30 N. La Salle St., Zone 2, $243,969***paving N. Southport Ave. from W. Cortland St. to W. Diversey Blvd., from H. G. Goelitz Co., 5757 Ogden Ave., Cicero, Zone 50, $329,507***paving S. Indianapolis Ave. between E. 106 to S. Ewing Sts., from American Asphalt Paving Co., 10 S. LaSalle St., Zone 3, $128,572.

▲ **Indiana**—State Hy. Comn., Indianapolis, Feb. 16, c. conc. 3.851 mi., bridges, U. S. Rd. 41, Gibson Co., from Olinger Constr. Co., Huntingburg, $780,047 est. $988,623.***c. conc. 3.089 mi. State Rd. 135, Harrison Co., from Stone City Constr. Co., Bedford, $336,531, est. $369,076***grading, drainage, two 1 span 32 ft. rein.-con. girder structures, c. conc. paving, 3.224 mi. U. S. Rd. 31, Johnson Co., and c. conc. paving 1.257 mi. State Rd. 29 in New Bethel and southeast, Marion and Shelby Counties, from Bernes Constr. Co., 312 E. Washington St., Indianapolis, Zone

(Continued on page 84)

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PUSEYJONES

(Continued from page 82)

4, $592,376, est. $700,567 and $172,748, est. $201,513 respectively***c. conc. 1.119 mi. W. Washington St., U. S. Rd. 40 between Little Eagle Creek and Elder Ave., Marion Co., from Wm. D. Vogel Constr. Co., 3760 E. St. Clair St., Indianapolis, Zone 1, $292,142, est. $326,917, CD 1/20.

Indiana—State Hy. Comn., Indianapolis, rejected bids Feb. 16, c. conc. 0.419 mi. U. S. Rd. 52, intersection of W 16th St., with Lafayette Rd. and White River Bridge approaches, L. B. $293,430, CD 1/20.

Iowa—State Hy. Comn., Ames, Feb. 14, road stone base and heavy bit. surf. tr. 6.106 mi. Iowa 289 out of Alta Vista east to U.S. 63, F. 944(3), Chickasaw Co., from Cameron-Joyce Co., Keokuk, Ia., $104,525***grading 8.57 mi. primary road from Terril north to Iowa 9, Sioux City, $70,493***grading, paving, storm sewer, F-905(1) Dickinson Co., from Johnstone Constr. Co., Incidental work 0.705 mi. 3 St. N.E. in Belmond from U.S. 69 east to east corporation line, SN-1516, Wright Co., from Central Constr. Co., Indianola, $50,450. CD 1/20.

Louisiana—State Hy. Dpt., Baton Rouge, Feb. 8, alternate grav. base course, 20 ft. bit. surf. tr., etc., 4.65 mi. State Hy. 1, Pelican-Mansfield Hy., Federal Aid Secondary Proj. S-94 (1), S. P. 30-03-10, Desota Parish, from W. H. Patterson & Co., Arbutus Standard Heights, Baton Rouge, $175,807***bit. surf. tr., etc. 1.977 mi., rein.-con. deck girder bridges, grav. State Rte. 6, Summerville-Olla Hy., Federal Aid Secondary Proj. S-104 (1), S. P. 127-02-07, LaSalle Parish, from Central Constr. Co., Monroe, $125,967***c. conc. 10.785 mi. rein.-con. deck girder bridges, etc. State Rte. 25, Kaplan-Gueydan Hy., Federal Aid Secondary Proj. S-102 (2), S. P. 55-04-05, Vermillion Parish, from Austin Roads Co., 1000 Singleton Blvd., Dallas, Tex., $621,548. CD 1/19.

Massachusetts—Commonwealth of Mass., Dpt. P. Wks., Boston, Feb. 14, hy. and bridge constr. S-6(4), Cheshire-Savoy, from Cooke-Ross Co., Inc., Lorenzo St., Torrington, Conn. $220,140. CD 1/25.

Michigan—State Hy. Dpt., Lansing, Feb. 16, stabilized aggregate surf. course 5.491 mi. M-47 from Haslett Rd., Ingham City north to Perry, Shiawassee Co., S.S. 76-30, C3 (S-262(1), Ingham and Shiawassee Counties, and c. conc. and concrete capping 6.285 mi. on M-146 from covert north to South Haven, Van Buren Co., from Sargent Concrete, Inc., Saginaw, (1) $133,072 (2) $133,071 and $444,681, respectively; 1.69 mi. 60 in. storm sewer in Detroit Industrial Expressway from Outer Dr. N.E. to Rouge River, SNJFAP 82-138 C1(SNJFAP 395 (42), Wayne Co., from Drainage Contractors, Inc., 22148 Michigan Ave., Dearborn, $197,707, CD 1/31; aggregate surf. 4.209 mi. M-61 from Osceola-Clare County line, E. and S., SS 18-27, C1 (S-27764) Clare Co., and aggregate surf. 2.477 mi. M-61, from east limits of Marion E. to Co. Line, SS 67-23, C7 (S-227(4), Osceola Co., from Pierson Contg. Co., 609 Eddy Bldg., Saginaw, $80,582, CD 2/9.

Michigan—State Hy. Dpt., Lansing, Feb. 16, c. conc, 0.565 mi. John C. Lodge Expressway from Seward to Holden Aves., in Detroit, Wayne Co., from Louis Garavaglia & Denton Constr. Co., Centerline, $649,427, CD 1/31.

Minnesota—State Hy. Dpt., St. Paul, Feb. 3, grav. base and road-mixed bit. surf. 6.5 mi. S. P. 1004-03 (TH 7-119) and S. P. 2704-05 (TH 7-119), and grav. base and road mixed bit. surf. 2.5 mi. S. P. 4707-12 (TH 15-161), F 944 (10) from Barton Contg. Co., 1463 Marshall Ave., St. Paul, $93,785 and $76,851 respectively***Co. grading 13.5 mi. S. P. 5906-10 (TH 75-6), F 778 (2) and F 277 (5), and grav. base and bit. surf., 11.5 mi. S. P. 4103-04 (TH 19-90) and S. P. 4104-04 (TH 190-14) from De Ruyter Bros., Willmar, $187,183 and $180,200 respectively*** paving 10.6 mi. S. P. 6012-04 (TH 81-175), F 939 (7), from Western Contg. Corp., 400 Benson Bldg., Sioux City, Ia., $382,487***grading 5.3 mi. S. P. 3101-04 (TH 1-160), from W. C. Griffis Co., Bagley, $59,465***grading 6 mi. S. P. 6913-12 (TH 35-35), from W. W. Mauee, Inc., 1397 Laurel Ave., St. Paul, $221,508***grading 5.1 mi. S. P. 1002-07 (TH 1-171) from W. Zaske, Dundas, $130,045. CD 1/18.

▲ New Jersey—New Jersey Turnpike Auth., 65 Prospect St., Trenton, Feb. 21, Contr. B, grading, drainage work covering about 45 mi. on Turnpike between Moorestown and Allentown and between Allentown and the Raritan River, incl. 3,783,400 cu. yd. excav., grading 541,800 sq. yd. topsoiling, 20,800 lb. reinforcing steel, etc. Burlington and Mercer Counties, and Contr. 11, grading, drainage work covering about 11½ mi. from Hackney Brook to Wiegards Lane in Secaucus, incl. demolition of bldgs. sheds and other structuers within right-of-way rock excav., stabilization of existing materials by use of vertical sand drains and constr. embankments etc. in connection with grading, drainage, incl. 186,000 cu. yd. clearing, grubbing, excav. earth rock, muck aggregating 1,113,-000 cu. yd. borrow excav., 56,000 ft. vertical sand drains, 1030 ft. rein.-cor. culvert pipe, Hudson Co., from George M. Brewster & Son, 55 W. Fort Lee Rd., Bogota, $2,477,738 and $1,954,920 respectively. CD 2/7.

Pennsylvania—State Hy. Dpt., Harrisburg, Feb. 10, bit. surf. pavement 12,176 ft. Route L. R. 392 (2), city of McKeesport, White Oak, East McKeesport Boros, North Versailles Twp., Allegheny Co., from Allegheny Zone 3, $109,870***c. conc. paving, 22 ft. wide, Asphalt & Paving Co., 801 Bingham St., Pittsburgh, bit. surf. crushed aggregate base, bit. surf. for paving railroad crossing 7,014 ft. Route L. R. 11030 Sect. 1, Nanty Glo Boro, Jackson Twp., Cambria Co., from George Bobo Co., Blair and Center Sts., Grove City, $276,046*** bit. surf. crushed aggregate base, resurf. existing pavement with bit. surf., bit. surf. for paving railroad crossing 2,390 ft. L. R. 54 (5), T. R. 45, 545, State College Boro, Ferguson Twp., Centre Co., from Penoyer Contr. Co., Inc., Bigler, $50,523*** resurf. pavement with bit. surf., 12,675 ft. L. R. 18 (7), L. R. 23 (12), L. R. 331 (1) and T. R. 220 and 654, Williamsport City, South Williamsport Boro, Lycoming Co., from Middlecreek Constr. Co., Middleburg, $55,461***bit. surf. crushed aggregate base 20 ft. wide 4,754 ft. L. R. 321 (4), T. R. 42, from near intersection of L. R. 321 and 56003, easterly, Shrewsbury Twp., Sullivan Co., from Wright Giffin, LeRaysville, 103,762***bit. surf. crushed aggregate base 16 ft. wide, incl. one rein.-con. structure, one I-beam bridge and one rein.-con. bridge 17,989 ft. L. R. 62122 (1), from intersection of L. R. 62122 and 62017 easterly toward Burgettstown Boro, Washington Co., from J. A. Irwin, 200 Court Office Bldg., Washington, $219,755***bit. surf. existing pavement 24 ft. and variable to 36 ft. wide and replacing existing pavement wid'n. with crushed aggregate base 2 ft. wide on either or both sides and bit. surf. new base and existing pavement 22 ft. and variable in width, 26,763 ft. L. R. 25 (4); 333 (5), T. R. U. S. 111, from point near Newlestown to the Fairview-Newberry Twp. line, York Co., from G. B. Cramer Constr. Co., P.O. Box 274, Lebanon, $112,377. CD 1/27.

▲ Pennsylvania—State Hy. Dpt., 506 N. Office Bldg., Harrisburg, Feb. 17, wid'n. existing pavement with crushed aggregate base 4 ft. wide, bit. surf. new base and existing pavement 22 ft. and variable in width; build-up and wid'n. existing pavement with crushed aggregate base 22 ft. wide and bit. surf. 22 ft. wide, bit. surf. existing pavement and bridge floor 54 ft. and variable in width, bit. surf. crushed aggregate base 22 ft. wide 6,933 ft. L. R. 196 (6); 22 (16). T. R. U. S. 15, Tioga Co., from Highway Paving Co., 1408 Edgewood Rd., Phila., Zone 31, $99,755***bit. surf. crushed aggregate base 18 ft. wide incl. exten. rein.-con. box, extens. rein.-con. bridge and shoulder grading, 10,100 ft. L. R. 236 (8), T. R. 44, southeast of Shinglehouse Boro near Coneville, Potter Co. from S. C. Beavan & Stanley M. Yeckenech, Dimock, $169,562***c. conc. pavement 33 ft., 48 ft. and variable in width, incl. 12 rein.-con. structures, exten. 2 structures; divided hy. consisting of c. conc. pavement 22 ft. wide on each side of concrete divisor, bit. surf. crushed aggregate base 33 ft. and variable in width, construct 3 rein.-con. bridges, 42,400 ft. L. R. 295 (68) T. R. U. S. 11 and 15, from north of Liverpool Southward to L. R. 519, front point near the Columbia-Luzerne county line westerly to point beyond the Columbia-Lycoming Co. line, Lycoming and Columbia Counties, from H. R. Miller Co. Inc., Box 1255, Lancaster, $907,542***build-up and wid'n. existing pavement with crushed stone base, bit. surf. 22 ft. wide incl. extens. of 2 existing structures; wid'n. existing pavement with crushed stone base 2 ft. wide; bit. surf. new base and existing pavement 22 ft. wide, 26,667 ft. L. R. 342-A (1), T. R. 94, from intersection of L. R. 126, west of Abbottstown northerly to the intersection to L. R. 549, Adams Co., from H. J. Williams, Inc., Somerset St. and W. Mid R. R., York, $205,234. CD 1/31.

▲ Texas—State Hy. Comn., Austin, Feb. 14, flexible base and asph. surf. tr. 9.448 mi. Hy U.S. 87, C. 69-7-21, Tom Green Co., from Strain & Brown, Inc., P.O. Box 1057, San Angelo, $234,149***flexible base, two course surf. tr. 8.849 mi. Hy. FM 1019 and 1558, S. 1278 (1), Dimmit Co., from Thomas & Ratliff, Rogers, $50,555***flex base, Duraco level-up course, one course surf. tr. 9.672 mi. Hy. FM 1468, F 346-10-3, Matagorda Co., and flexible base, double asph. surf. tr. Hy. FM 891, Proj. S. 1438 (1), Nueces Co., from South Texas Constr. Co., P.O. Box 1673, San Benito, $92,360 and $111,180, respectively*** roadbed tr. and two course surf. tr. 10.447 mi. Hy. FM 535, Proj. S. 436 (2), Bastrop Co., from M. J. Constr. Co., P.O. Box 1211, Beeville, $76,116 ***foundation course, prime coat and one course surf. tr. 8.127 mi. FM 930 and 931, S. 1336 (1) and S. 1415 (1), Coryell Co., from T. E. Sanderford, P.O. Box 58, Belton, $73,238***flexible base, one course surf. tr. 7.146 mi. Hy. FM 35, S. 1258 (1), Hunt Co., from L. H. Lacy & Co., 5630 Yale Blvd., Dallas $143,571***grading, structures 1,967 mi. Hy. U.S. 67, FI-826 (7), Rockwall Co. and flexible base, one and two course surf. tr. 20.702 mi. Hy. FM 1064, 179 and 829, Proj. S. 1459 (1) and S. 1049 (2), Dawson Co., from Ernest Loyd, P.O. Box 1120, Fort Worth, $87,667 and $139,467 respectively***grading, structures, surf. 4.978 mi. Hy. FM 909, S. 1260 (1), Red River Co. from John F. Buckner & Son, P.O. Box 76, Cleburne, $148,046***flexible base, one course surf. tr. 10.5 mi. Hy. FM 1054, Proj. S. 1466 (1), Borden Co., from Kerr & Middleton, 2206 N. 1st St., Lubbock, $65,982***flexible base, one course surf. tr. 8.601 mi. Hy. FM 1167 and 1166, S. 1436 (1) and S. 1502 (1), Hardeman Co., from Bell, Braden, Barker & Gilvin, Inc., Herring Hotel Bldg., Amarillo, $73,-062***flexible base, one course surf. tr. 5.22 mi. Hy. FM 105, S. 585 (2) Orange Co., from R. W. McKinney, P.O. Box 190, Nacogdoches, $91,382. CD 1/26.

Virginia—State Hy. Dpt., Richmond, Feb. 14, 1.65 mi. four-lane divided highway U.S. Route 58, continuing recently completed construction east from Norfolk toward Virginia Beach, Princess Anne Co., from Ames & Webb, Inc., 3145 Broad Creek Rd., Norfolk, $278,216***2.84 mi. 22 ft. and 18 ft. pavement, Routes 64 and 71, southwest from Dickensonville, Russell Co., from R. G. Pope Constr., Bristol, $174,-255***4.69 mi. 22 ft. pavement Route 6, con-

tinuing present construction west from Richmond, Henrico and Goochland Counties, and 6.64 mi. hard surf., Secondary Route 687, between U.S. 58 at Horse Pasture and U.S. 220 north of Ridgeway, Henry Co., from Adams & Tate Constr. Co., 2725 Roanoke Ave., Norwich, Roanoke, $161,114 and $71,875 respectively. CD 1/27.

CONTRACTS AWARDED

Georgia—State Hy. Dpt., Atlanta, paving 2 double bridges, 3.54 mi. at Pumpkin Vine Creek, F1-484 (3), Cobb and Bartow Counties, Contr. 1, to E. H. Hines Constr. Co., Inc., Greenwood, S. C., $699,297. Bids 1/27. CD 2/2, under LB.

Louisiana—State Hy. Dpt., Baton Rouge, c. conc. 10.785 mi., rein.-con. deck girder bridges, etc. State Rte. 25, Kaplan-Gueydan Hy., Federal Aid Secondary Proj. S-102 (2) S. P. 55-04-05. Ve million Parish, to Austin Rds. Co., 1000 Singleton Blvd., Dallas, Tex. $621,555. Bids 2/8, awarded 2/10. CD 2/15, under LB.

▲ Massachusetts—Commonwealth of Mass., Dpt. P. Wks., Boston, Federal Aid State Hy. and bridge constr., U-272 (26), Lexington, to Cit Wyner Co., Inc., 12 Newland St., Malden, $1,972,092; Federal Aid State hy. and bridge constr., U-272 (23), Burlington-Lexington, to Peter Salvucci, 55 Pond St., Waltham, $1,679,531. Bids 1/31, awarded 2/14. CD 2/8, under LB.

Minnesota—State Hy. Dpt., St. Paul, grav. base and road mix bit. surf., 7.5 mi. between Dassel and 1/2 mi. south of Kingston, S. P. 4707-12 (T. H. 15-151), F 944 (10), to Munson & Nelson, Cannon Fass, $77,715. Bids 2/3. CD 2/15, under LB.

▲ Oklahoma—State Hy. Dpt., Oklahoma City, b. conc. paving, one bridge 1.759 mi. Hy. 99, north of Madill, Marshall Co. to Anchor Const. Co., Munhattan Bldg., Muskogee, $161,286, est. $161,837***gravel surf., and culvert 4.586 mi. county road east of Foyil to Mayes Co. line, Rogers Co., to Oklahoma Constr. Co., Barnes Bldg., Muskogee, $57,746, est. $67,575*** c. conc. 7.128 mi. U. S. 266 west of Checotah, McIntosh Co., to Sooner Constr. Co., Barnes Bldg., Muskogee, $407,221, est. $408,370***c. conc., culverts 0.98 mi. Hy. 36 in Lawton, Comanche Co., to Myron Groschke, 4000 N. W. 39 St., Oklahoma City, Zone 7, $263,815, est. $284,744***c. conc. 6.348 mi. Hy. 20 west of Pryor, Mayes Co., to Standard Paving Co., 3119 E. 11 St., Tulsa, $299,362, est. $300,606***gravel surf., 2 box culverts 5.99o mi. county road west of Pascassett, Grady Co. to H. R. Landt, 7136 W. Park St., Oklahoma City, Zone 6, $62,504, est. $76,282***stabil. base, double bit. surf., 7.789 mi. St. Hy. 47 west of Reydon, Roger Mills Co., to Park Ward Co., Insurance Bldg., Oklahoma City, Zone 2, $91,048, est. $101,042*** gravel surf., 2 culverts 4.34 mi. county road east of Reydon, Roger Mills Co. and gravel surf., 4 culverts 7.789 mi. county road from Reydon to Texas State Line, Roger Mills Co., to G. E. Keck, Fairview, $101,788, est. $128,038 and $90,496, est. $117,768 respectively***grading, drainage 5.913 mi. Hy. 9 from Stigler to Whitfield, Haskell Co., to D. T. Allen, Henryetta, $59,389, est. $88,215***stabil. aggregate base, rock asph. surf., 5.937 mi. Hy. 9 from Stigler to Whitefield, Haskell Co., to Layman & Sons, Riverside Dr., Tulsa, Zone 6, $225,866, est. $226,859. Grand total $1,820,521. Bids 2/7, CD 2/1.

▲ Pennsylvania—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg, grading, drainage, paving, structures, 3.97 mi. Turnpike Sec. 29D Western exten. from point approx. 650 ft. east of centerline of Beaver River easterly 21.002 ft. to point approx. 2,077 ft. west of Township Rd. 609, North Sewickley Twp., and grading, drainage, paving, structures, approx. 5.22 mi. Sect. 29E, Western exten. of Pennsylvania Turnpike from point approx. 2,077 ft. west of Twp. Rd. 609, North Sewickley Twp. in an easterly direction 27,547 ft. to point approx. 351 ft. west of L. R. 04011 (T. R. 989) both Beaver Co., structures grading, drainage, paving approx. 3.85 mi., Sec. 30 A, Western Exten. Pennsylvania Turnpike, from point approx. 351 ft. west of L. R. 04011 (T. R. 989) in New Sewickley Twp., Beaver Co., easterly 20 317 ft. to point approx. 3,000 ft. west of L. R. 10002, Cranberry Twp., Butler Co., Beaver and Butler Counties, and grading, drainage, paving, structures approx. 2.44 mi. Turnpike Sect. 30B, Western exten. of Pennsylvania Turnpike from point approx. 3,000 ft. west of L. R. 10002 in Cranberry Twp., easterly 12,903 ft. to point at Butler-Allegheny Co. line in Cranberry Twp., Butler Co., to L. G. DeFelice & Son, Nettleton Ave., North Haven, Conn., $7,108,419. Bids 1/31, CD 2/2, under LB.

Tex., Groves (Port Arthur P.O.)—P. L. Osborne & E. L. Vaughn, Port Arthur, street constr., paving, own forces, $66,500.

West Virginia—State Rd. Comn., Charleston, soil cement stabilization and surf. tr. 5.653 mi. Allen Fork Rd. (Sect. 19 Kanawha Co.) (Sec. 34/26 Putnam Co.) Proj. S 594 (1), Kanawha and Putnam Counties and soil cement stabilization and surf. tr. 1.381 mi. Hicumbottom-Coon Creek Rd. (Sec. 33, 5.62 (2), Kanawha Co., to Paul Price C. E. Wetherall & Highway Maintenance Co., Huntington, $225,372 and $106,114 respectively***macad. base surf. 1.609 mi. Board Tree Rd. (Sec. 250.14 and 250/15) State Secondary Proj. 6718, Marshall Co., to Allen Constr. Co. & Barnes Constr. Co., Fairmount, $72,046*** macad. base, surf. tr. 5.821 mi. Friendly-Little Rd. (Sec. 6) State Secondary Proj. 6348, Tyler Co., to Keeley Constr. Co., Clarksburg, $174,676. Grand total $578,208. Bids 1/24, awarded 2/6. CD 1/31.

EARTHWORK, WATERWAYS

BIDS ASKED

† Mass., Woods Hole—B.A. 3/7—First Coast Guard Dist., 447 Commercial St., Boston, sheet pile bulkhead, Coast Guard Depot, SO 797-50.

† Nebraska—B.A. 3/7—Bureau Reclamation, Dpt. Interior, Bldg., 1A, Denver Federal Center, Denver, Colo., two 4x4 ft. high pressure gates with two 85,000 lb. hydraulic hoists for Trenton dam canal outlet works, Frenchman-Cambride Div. Missouri River Basin Proj., Spec. 2913.

Ark., Jonesboro—B.A. 3/8—Craighead County Drainage Dist. 18, Jonesboro, 966,005 cu. yds. excav., 319 acres clearing and 2,300 lin. ft. bridges. Plans deposit $22. Fred Haywood, Jonesboro, engr.

† N. J., East Orange—B.A. 3/8—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., site preparation excavation and storm sewer at Veterans Administration Hospital, Tremont Ave. and Center St., No. 30-075-50-75.

† Maine—B.A. 3/9—U. S. Eng., New England Div., Army Base, Boston, 10, Mass., dredging, Josias River, Perkins Grove, Oquequit Village, C. E. Adams, div. engr., CD 6/9/44.

† New Mexico—B. A. About 3/14—U. S. Eng., P. O. Box 1538, Albuquerque, Conchas Dam and Reservoir Proj., reconstruct stilling basin revetment, Serial No. CIVENG-29-005-50-10.

† California—B.A. 3/14—U.S. Eng., Wright Bldg., Sacramento, clearing, channel imprv. on Lower Butte Creek, near Butte City.

† California—B.A. 3/14—U. S. Eng., Wright Bldg., Sacramento, Natoma Canal Temporary Bypass Tunnel, Folsom Reservoir Proj., near Folsom, Sacramento Co., Spec. 04-167-50-46.

† Oregon—B.A. 3/14—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., channel and levee along Walla Walla River, Station 127 plus 00 to 183 plus 00 (Sect. 5) Milton-Freewater Proj. in vicinity of Milton, Umatilla Co., Serial No. CIVENG-45-164-50-90.

† Texas and Arkansas—B.A. 3/15—U. S. Eng., foot of Prytania St., New Orleans 9, La., construct flood plain sect. of Texarkana Dam, Serial No. CIVENG-16-047-50-210.

† Montana—B.A. 3/16—U. S. Eng., Fort Peck Dist., Fort Peck, installation third generating unit (35,000-KW) with associated equipment, appurtenances, at Fort Peck Power House near east end of Fort Peck Dam, Missouri River, approx. 20 mi. southeast of Glasgow, CIVENG-24-016-50-30. CD 12/30.

† Oregon—B.A. 3/16—U. S. Eng., 628 Pittock Block, Portland, Zone 5, public use facilities at Cottage Grove Reservoir, Serial No. CIVENG-35-026-50-272.

LOW BIDDERS

† California—U. S. Eng., 751 S. Figueroa St., Los Angeles, Feb. 10, channel imprv., Sawtelle-Westwood system, Braddock Dr. and Washington Pl., Los Angeles, Los Angeles Co., CIVENG-04-343-50-21, from Webb & White, 4719 Melrose Ave., Los Angeles, $775,147. Est. $1,000,000 - $2,000,000. CD 1/16.

▲† California—U. S. Eng., 751 S. Figueroa St., Los Angeles, Feb. 17, dredging earthwork, jetty construction, levee, etc. San Diego River and Mission Bay Imprvt., Floodway, San Diego, San Diego Co., CIVENG-04-343-50-24, from Guy F. Atkinson Co., Box 259, Long Beach, $2,340,600. Est. $2,324,849. CD 1/26.

47 Colorado—Bureau Reclamation, Dpt. Interior, Paonia, Feb. 16, constr. earthwork, structures for enlargement of Fire Mountain Canal, Station 340 plus 00 to 686 plus 00, Paonia Proj., Spec. 2909, from Crocker & Ellett Inc., 1863 Wazee St. Denver, $137,887, Est. $138,336. CD 2/21.

† Conn., Winsted—U. S. Eng., Bldg. 21, Naval Drydock, South Boston Mass., Feb. 15, imprv. channel flood control, Mad River Proj., ENG 19-016-50-32, from J. P. Duggan & Son, Inc., 850 Meeker Ave., Brooklyn, N. Y., $118,885. CD 1/13.

† Florida—U. S. Eng., 575 Riverside Ave., Jacksonville, Feb. 15, dredging Ybor Channel in Tampa Bay to 32 ft. deep and widin. from 300 ft. to 500 ft., Hillsborough Co., CIVENG -08-123-50-43, from Standard Dredging Corp., 80 Broad St., New York, N.Y., $378,656, Est. $304,440. CD 1/31.

† Florida—U. S. Eng., P. O. Box 4970, Jacksonville, Feb. 15, constr. levees L-35 and L-36, Central and Southern Florida Flood Control near Ft. Lauderdale, Broward Co., Inv. No. CIVENG-08-123-50-54, from Hooper Constr. Co., Coral Gables, $741,615. CD 12/3.

† Louisiana—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, rejected bids Feb. 9, excav. approx. 783,000 cu. yd. material from approach channels to Calcasieu Lock and placing 33,000 cu. yd. material in earth dam embankment across Gulf Intracoastal Waterway, at Mile 237.5, CIVENG 16-047-50-185, L. B. $194,583. CD 2/17.

† Louisiana—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, Feb. 15, approx. 1,250 lin. ft. pile dikes, located on and adjacent to right descending bank of Red River Mile 92.9 (1938) in Avoyelles Parrish about 1 m. northeast of Echo, Avoyelles Parrish, Item D-93, 9-R, CIVENG 16-047-50-197, from Kansas City Bridge Co., 71 By Pass, Kansas City, Mo., $85,724. CD 1/31.

Massachusetts—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, cancelled bids to have been opened Feb. 21, removal of trees and stumps in Housatonic River, Stockbridge, Project postponed indefinitely. CD 2/15.

† Ohio—U. S. Eng., Niagara and Bridge Sts., Buffalo, N. Y., Feb. 7, maintenance and new dredging Cleveland Harbor, Cuyahoga River and Old River, Serial No. CIVENG-30-023-50-52, from Great Lakes Dredge & Dock Co., Williamson Bldg., Cleveland, $280,280. Est. $218,000. CD 1/o.

▲† Oklahoma—U. S. Eng., P. O. Box 61, Tulsa, Feb. 17, completion of embankment work on the Tenkiller Ferry Dam, Illinois River, Muskogee Co., Inv. No. CIVENG-34-066-50-97, from W. E. Logan & Sons, Barnes Bldg., Muskogee, $1,734,015. Est. $2,791,788. CD 1/25.

▲† Texas—U. S. Eng., 606 Santa Fe Bldg., Galveston, outlet works and service bridge for Belton Dam and Reservoir Proj. at Miller Springs site near Belton, CIVENG-41-253-50-139, from Winston Brothers, Inc., Azusa, Calif., $1,890,571. Est. $2,488,757. CD 1/24.

▲† Texas—U. S. Eng., 606 Santa Fe Bldg., Galveston, Feb. 14, completion of embankment, Grapevine Dam and Reservoir, Denton Creek, Elm fork of Trinity River, Tarrant Co., Inv. No. 41-243-50-151, from T. L. James Co., Inc. and Guilliam Brothers, Ruston, La., $1,835,178. Est. $2,067,784. CD 1/24.

† Washington—Bureau Reclamation, Dpt. Interior, Ephrata, Feb. 14, earthwork, structures, surf., constr., Lind Coulee Bridge relocation of county roads vicinity of O'Sullivan Dam, Columbia Basin Proj., approx. 8 mi. west of Warden, Grant Co., Spec. 2876, from David Nygren, Lloyd Bldg., Seattle, $161,691. Est. $183,706. CD 2/1.

N. B., St. Mary's—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., Feb. 15, breakwater at Shippigan Island, from Diamond Constr. Co., 60 Carleton St., Fredericton, Approx. $279,550. CD 2/2.

CONTRACTS AWARDED

† Montana—Bureau Reclamation Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Schedule 1, 280,000 bbl. bulk Portland cement for constr. Canyon Ferry Dam and power plant, in Louisville, Missouri River Basin Proj., Canyon Ferry Unit, Spec. 2835, to Ideal Cement Co., Denver National Bldg., Denver, Colo., $980,000, f.o.b. Trident, Bids 1/17, awarded 2/9. CD 1/27, under LB.

Tex., Houston—City, City Hall, 900 Brazos St., drainage, concrete-lined outfall ditch from Airport to Simms Bayou to Viking Constr. Co., 6740 Harrisburg St., $881,818. Est. $300,000. Bids 2/8. CD 1/25.

† Washington—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, recreational facilities, administration bldgs., other work at Mud Mountain Dam, Enumclaw, CIVENG-50-56, to Dally Constr. & Eng. Co., Securities Bldg., Seattle, Zone 1, $157,243. Est. $138,103. Bids 2/15. CD 2/8.

AIRPORTS

BIDS ASKED

† N. Y., Niagara Falls—LEAN-TO—B.A. 3/8—Pub. Wks. Office, Third Naval Dist., 50 Church St., New York, Zone 7, lean-to on West Hangar, Naval Air Station, Noy 19761, Spec. No. 23406.

† Va., Chincoteague—PUMP HOUSES, etc.—B.A. 3/8—P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, 3 pump houses, NOY 20068 (23617); 22x46 ft. 4-car garage, NOY 20213 (23733). Plans deposit $10 each.

PUBLIC BUILDINGS

BIDS ASKED

N. Y., Jamestown—POST OFFICE SITE CLEARING—B.A. 3/6—Pub. Bldgs. Admin., 731 Custom House, New York, Zone 4, clearing site for proposed new post office. CD 12/2.

Ga., Atlanta—SCHOOL—B. A. 3/7—Fulton Co. Bd. Educ., Courthouse, William L. Scott School, John W. Cherry, Candler Bldg., archt.

Kan., Medicine Lodge—SCHOOL—B. A. 3/7—Bd. Educ., Medicine Lodge school, $250,000. Hibbs & Robinson, 519 E. Broadway, Wichita, archts. CD 6/17.

Miss., Canby—SCHOOL—B. A. 3/7—Bd. Educ., C. S. James, clk., 1 story, gymnasium-auditorium high school addn., incl. boiler plant, $250,000. Plans deposit $15. Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, archts. CD 7/11.

Mo., Columbia—CLASSROOM—B.A. 3/7—Curators University of Missouri, Leslie Cowan, secy., Jesse Hall, brick, concrete, stone, steel classroom bldg., University of Missouri on campus between Education and Engineering bldgs., $600,000. Jamieson & Spearl, 1696 Arcade Bldg., 812 Olive St., St. Louis, Zone 1, archts. CD 7/31/46.

Pa., O'Hara Twp. (near Sharpsburg)—SCHOOL—B.A. 3/7 School Dist. of O'Hara Twp., Sharpsburg, 70x226 ft., brick, tile Montrose Grade School, $350,000. Bowers & Barabalat, 417 Grant St., Pittsburgh, archts. CD 12/22, under LB.

† Va., Fort Myer—FAMILY QUARTERS—B.A. 3/7—U. S. Eng., First and Douglas Sts. N. W. Wash. 25, D. C., conversions to family quarters, Serial No Eng-49-080-50-10 (13).

Mich., Kalamazoo—HOSPITAL—B.A. 3/8—State, State Bldg., Lansing, Kalamazoo State Mental Hospital addn., $900,000. CD 1/18.

† Miss., Columbus—BLDG. MODIFICATIONS—B.A. 3/8—U. S. Eng., 2301 Grant St., Mobile, Ala., altering, bldg. for recruiting and O. R. C. use, 213 Fifteenth St., CIVENG 01-076-50-40. Plans deposit $5.

† **Missouri**—HOSPITAL—B.A. 3/8—U. S. Eng., U. S. Courthouse and Custom House, St. Louis, Zone 1, constr. Veterans Admin. Hospital, Jefferson Barracks, V. A. Proj. V. A. 9-4010. CIVENG-23-065-50-63. CD 4/19/48.

N. Y., New York—HOUSING STREET, YARD IMPRVS. —B.A. 3/8—New York City Housing Auth., 63 Park Row, Zone 7, street and yard imprvs. for Dyckman Houses (Proj. No. NYC-10) in area bounded by Dyckman St., Nagle Ave., W. 204 St. and 10 Ave. in Manhattan Boro. Plans deposit $25.

† **Wash., Seattle**—LABORATORY—B.A. 3/8—U. S. Eng., 4735 E. Marginal Way, Zone 4, laboratory bldg. on site of Veterans Administration Hospital, CIVENG 45-108-50-57. Plans deposit $10.

Que., Hull—SCHOOL—B.A. 3/8—Lucien Loverdure, secy. School Comn., 99 Hotel de ville, 12 classroom Loverdure School addn., repairs, 69 Desjardine St., Approx. $260,000. L. Savia-Bourret, 189 Principale St., archt.

Que., St. Jerome—POST OFFICE, etc.—B.A. 3/8—Acting Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., public bldg., post office, etc., Approx. $400,000. G. Brault, c/o owner, engr.

Tex., Houston—SCHOOL—B.A. 3/9—Houston Independent School Dist., 1600 Washington St., brick, hollow tile slab fdn. $325,000. Plans deposit $25. Stayton Nunn, 2425 Ralph St., co-ord. archt. Thomas E. Greacen, 1010 Winbern St., archt. CD 2/7.

† **Va., Warrenton**—FAMILY QUARTERS—B.A. 3/9—U. S. Eng., First and Douglas Sts. N. W. Wash. 25, D. C., converting to family quarters at Vint Hill Farms, Eng. 49-080-50-12-(15).

N. C., Raleigh—EDUCATION—B.A. 3/9—At office George Cherry, secy., Bd. Agriculture Bldg., 5 or 6 story education bldg. addn., Salisbury and Edenton Sts., for State Bd. Pub. Bldgs. & Grounds, Raleigh. $800,000. Plans deposit $25. Northrup & O'Brien, 602 Reynolds Bldg., Winston-Salem, archts. CD 12/16.

† **Wyoming and Nebraska**—SUBSTATION EQUIPMENT—B.A. 3/9—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars at shipping point or f.o.b. cars at Cheyenne and Casper, Wyo., Gering, Neb., Greeley, Loveland and Brush, Colo., substation equipment at Beaver Creek and Greeley substations and Estes and Flatiron Power Plants, Colorado-Big Thompson Proj., Colo.; Casper & Cheenne substations Seminoe Power Plant, Kendrick Proj., Wyo., Alcova and Gering substations, Kortes Power Plant, Missouri River Basin Proj. Spec. 2429. L. N. McClellan, ch. engr.

N. Y., Woodstock—SCHOOL—B.A. 3/10—Bd. Educ., Common School Dist. 2, Woodstock, school. $250,000. Plans deposit $30. Albert Graeser, Ohayo Mt. Rd., archt.

▲ **Wyo., Cheyenne**—STATE OFFICE—B.A. 3/10—Wyoming State Capitol Bldg., Comn., Cheyenne, state office, $1,100,000. Kellogg & Kellogg, 1909 Carey Ave., and Porter & Bradley, 1009 E. Lincolnway, archts.

▲ **Mass., Weymouth**—SCHOOL—B.A. 3/11—Town, Supt. Schools, 89 Middle St., 2 story, bsmt., Junior High School, Park and Pleasant Sts., South Weymouth, $1,500,000. Extended date. Plans deposit $50. Colletti Bros., 687 Boylston St., Boston, archt. CD 1/27.

Mich., Sault Ste. Marie—SCHOOL—B.A. 3/13—City, City Hall, Lincoln School. $460,000. Plans deposit $20. Warren S. Holmes Co., Olds Tower, Lansing, archt. CD 1/19.

▲ **Tenn., Donelson**—SCHOOL FOR BLIND—B.A. 3/14—State Bd. Educ., State Office Bldg., Nashville, school for blind. $2,000,000. Marr & Holman, Stahlman Bldg., Nashville, archts. (Correction—location of project). CD 2/20, under Tenn., Nashville.

Fla., Panama City—SCHOOL—B.A. 3/14—Bay Co. Bd. Pub. Instruction, Panama City, Springfield Junior High School. Approx. $250,000; Jinks Junior High School. Plans deposit $50 each. Prentiss Huddleston & Assoc., 212 Monroe St., Tallahassee, archts. CD 10/11.

Tex., Dell Rio—HOUSING—B.A. 3/14—Dell Rio, Val Verde County Housing Auth., Dell Rio, 128 unit housing. $928,000. Plans deposit $50. Phelps & De Wees & Simmons, 1501-6 Majestic Bldg., San Antonio, archts. CD 11/21.

Tex., Vernon—COMMUNITY CENTER—B.A. 3/14—Williamson Co., c/o A. D. Green, judge, Vernon, community center. $650,000. Plans deposit $15. Wilson & Patterson, 201 Majestic Bldg., Ft. Worth, archts.

† **Alaska**—MILITARY INSTALLATION—B.A. 3/14—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, military installation at Fire Island. 595-507-50-6. Extended date. CD 1/4.

▲† **Calif., San Francisco**—HOSPITAL, etc.—B.A. about 3/15—General Services Admin., Public Bldgs. Service, Wash., D. C., extension, remodeling 6 story, bsmnt., rein.-con. brick, terra cotta United States Marine Hospital, rein.-con. boiler house, stack and tunnels, steel stud and plaster partitions, steel furring and plaster, all earthquake constr., Proj. No. 4-113 SAAF. $3,560,000.

▲† **N. M., Los Alamos**—DWELLINGS—B.A. 3/15—U.S. Atomic Energy Comn., Los Alamos, 104 single and multiple dwellings, 182 individual housing units, frame superstructure, concrete fdn. $2,000,000. Plans deposit $50. CD 11/25.

† **Alaska**—MILITARY INSTALLATION—B.A. 3/15—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, military installation at Murphy Dome. 595-507-50-7. Plans deposit $100. Extended date. CD 1/25.

† **Alaska, Ketchikan**—TRANSMITTER—B.A. 3/15—U.S. Eng., (APO, 942, c/o PM, Seattle, Wash.), Anchorage, 31x90 ft. rein.-con. air-conditioned transmitter bldg., 595-507-50-8. Plans deposit $25. Extended date. CD 1/25.

Calif., Berkeley—SCHOOL—B. A. 3/16—Berkeley Bd. Educ., 1414 Walnut St., concrete 15 classroom Le conte Elementary School, Approx. $250,000. Plans deposit $40. Bids 1/31, rejected. Dragon, Schmidts, & Harman, 1320 University Ave., archts. CD 2/7, under LB.

LOW BIDDERS

Calif., San Francisco—YOUTH GUIDANCE CENTER—Dpt. P. Wks., City Hall, Feb. 15, general contract Youth Guidance Center, Phase No. 3, from Monson Bros., 475 6 St., $635,807. CD 1/25.

Conn., Meriden—SCHOOL—City, John D. Shaw, Meriden, Feb. 14, brick steel 12 classroom school auditorium and cafeteria, Markham Pl. and Parker Ave., from New England General Contg. Co., 341 State St., Hartford, $420,000. CD 1/31.

Fla., Quincy—HOSPITAL—Gadsden Co., Quincy, Feb. 14, hospital, from Hogan & Horrman, Beach Dr., St. Peterburg, $783,682. CD 12/19.

Ga., Atlanta—SCHOOL—City Bd. Educ., City Hall, Feb. 7, Williams Street School, from Henry A. Ivey, Inc., 569 Plum St. N.W., $533,686. CD 1/11.

Ind., East Chicago—SCHOOL—Bd. Educ., Jan. 10, 2 story, bsmnt., 200x240 ft., brick, Eugene Field School, from John A. Adinolfi, 3922 Main St., $789,815, CD 1/6.

Kan., Norton—EMPLOYEES—State Bd. Regents, Topeka, Feb. 14, employees bldg., State Sanitarium for Tuberculosis, from Olson Constr. Co., 410 S. 7 St., Lincoln, Nebr., $286,369. CD 2/1.

† **Ky., Lexington**—BOILER HOUSE, etc.—Veterans Admin., Wash. 25, D. C., Feb. 14, addnl. bldgs., utilities, incl. approx. 175,000 cu. ft. Boiler House 39; approx. 1,550 cu. ft. Underground Wet Salt Storage Basins 43; approx. 500,000 gal. Concrete Reservoir 44; approx. 8,000 cu. ft. Pump House 45, etc., from Hargett Constr. Co., 113 Walton Ave., $461,680; 2,800 ft. Underground Soft Water Reservoir 42, from Struck Constr. Co., 147 N. Clay St., Louisville, $83,000. CD 12/27.

▲ **La., Shreveport**—HOUSING—Shreveport Housing Auth., W. C. Mason, secy., City Hall, Feb. 17, Wilkinson Terrace Housing Proj. LA-2, from Farnsworth & Chambers, P. O. Box 74, Houston 1, Tex., $1,191,965. CD 1/11.

Md., Gaithersburg—SCHOOL—Montgomery Co. Bd. Educ., Rockville, 1 story, 260x288 ft., concrete brick, cinder block steel Senior High School, from Byrne Organization 2607 Connecticut Ave., Wash., D. C., $630,000. CD 1/16/48.

▲ **Mass., Somerville**—HOUSING—City of Somerville Housing Auth., 139 Alewife Brook Parkway, Feb. 16, 200-2 Veteran's Housing Proj., Fiske Estate, Mystic Ave. and Turnpike, from Calumet Constr. Co., 50 Calumet St., Roxbury, $2,120,262. CD 1/19.

Mich., St. Joseph—JAIL—Bd. Supervs., Berrien Co., Court House, Jan. 30, 2 story, bsmnt., 49x132 ft. and 54x175 ft. T-shaped jail house, and 35x51 ft. masonry rein.-con., reinforcing steel power house, from Peter Shumacher & Son, 321 S. Spring St., Mishawaka, Ind., $585,128. CD 1/6.

Minn., Minneapolis—ACCELERATOR—University of Minnesota, R. S. Callaway, purch. agt., 323 Admin Bldg., Main Campus, Feb. 14, 1 story, 42x170 ft. linear accelerator bldg., on Main Campus, from Knutson Constr. Co., 1103 Plymouth Bld., $82,380. CD 2/1.

Minn., Wazata—SCHOOL—Bd. Educ., C. H. Meyer, clk., Feb. 1, general contract 3 story school, from F. O. Watson Co., 450 Baker Bldg., Minneapolis, $659,599. CD 1/7-8.

Miss., Ocean Springs—FACTORY—Bd. Supervs. Jackson Co., Pascagoula, Feb. 14, factory, from Walley Constr. Co., Richton $87,500. CD 1/25, under Industrial Bldgs.

N. J., Trenton—HIGH SCHOOL—Ewing Twp. Bd. Educ., Parkway Ave., Feb. 1, high school, from Wm. C. Ehret, 209 Academy St. $752,845. CD 12/8.

▲ **N. J., Westfield**—HIGH SCHOOL—Bd. Educ., Westfield Senior High School, Darlen Rd., from Walter Kidde Constructors Inc., 140 Cedar St., New York, Zone 6, N. Y., $1,433,000. CD 10/23/44.

Tenn., Memphis—CAFETERIA and STUDENT CENTER—State Dpt. Educ., Nashville, cafeteria and student center at Memphis State College from Consolidated Contractors, 1489 Thomas St., $322,827.

Tex., Commerce—ADMINISTRATION, etc.—East Texas State Teachers College Commerce, Feb. 8, administration and industrial educ. from Hal C. Dyer, Lone Star Gas Bldg., Dallas, $512,000. Est. $350,000. CD 1/15.

Tex., Kingsville—ADMINISTRATION-LIBRARY—Texas College of Arts & Industries, Kingsville, Feb. 7, combination administration-library, from Hill & Combs, 321 Melrose Pl., San Antonio, $519,440. CD 1/11.

Tex., Levelland—GYMNASIUM, etc.—Levelland Independent School Dist., Levelland, cancelled bids to have been opened Feb. 17, gymnasium and shop, $250,000. Will re-advertise. CD 2/7.

Tex., Pasadena—SCHOOL—Pasadena Independent School Dist., Pasadena, Feb. 13, school addns., from Fisher Constr. Co., 4100 Day St., Houston, $256,000. Cancelled bids to have been opened Feb. 13 elementary school, Lloyd & Morgan, 4605 Montrose Blvd., Houston, archts.

Tex., Tyler—SCHOOLS—Tyler Independent School Dist., Tyler, Feb. 10, Northwest School and Hogg Junior High and Roberts Junior High Gymnasiums, from Campbell & Kay, Box 836, $384,603. CD 1/23.

Wash., Auburn—SCHOOL—School Bd., Auburn, Feb. 16, general contract high school, from Carl Nilson & Sons, Auburn, $564,825. CD 1/18.

CONTRACTS AWARDED

Ark., Newport—HIGH SCHOOL—Newport School Bd., Newport, general contract Junior High School, to Peterson, Joseph & Garbia, Commercial National Bank Bldg., Little Rock, $275,370. Bids 2/14. CD 2/1.

Calif., Culver City—SCHOOL—City Bd. Educ., 9520 School St., school bldgs. at Culver City High School, to G. Iannini, 2701 Sepulveda Blvd., Manhattan Beach, $517,500. Bids 1/27, awarded 2/1. CD 2/2, under LB.

Calif., Los Angeles—AUDITORIUM—Bd. Educ., 1425 S. San Pedro St., auditorium at East Los Angeles Junior College, East Los Angeles, to Hermann Co., 417 S. Hill St., $556,000. Bids 2/3, awarded 2/10. CD 1/18.

Calif., Modesto—SCHOOL—Modesto City School Dist., Modesto, frame, stucco 23 classroom Mark Twain School, concrete fdn., to Harris Constr. Co., Box 109, Fresno, $564,266. Bids 2/6. CD 12/30.

Calif., Santa Cruz—SCHOOL—Santa Cruz Bd. Educ., 65 Mission St., 2 story, Branciforte Junior High School with 1 story wings and athletic field, to Nomellini Constr. Co., Box 1177 Stockton, $551,458. Bids 2/14. CD 1/12.

Fla., Fernandina—SCHOOLS—Bd. Pub. Instruction, Fernandina, various school addns., to Dennison Constr. Co., Gainesville, $648,817. CD 2/7, under LB.

▲ **Fla., Miami**—HOSPITAL—Dade Co., Miami, 7 story Jackson Memorial Hospital addn., to Fred Howland, Inc., 1451 N. W. 20 St., $2,697,252. Bids 1/24. CD 1/31, under LB.

Idaho, Pocatello—GYMNASIUM, etc.—State Comr. P. Bldgs., State House, 180x300 ft. re n.-con. brick gymnasium and swimming pool, to C. H. Elle Constr. Co., 390 Monroe St. $981,500. Bids 1/10. CD 1/18, under LB.

Ia., Ames—AGRONOMY—State Bd. Educ., 1007 Des Moines St., Des Moines, general contract agronomy bldg., Iowa State College, to Dinse Constr. Co., 410 S. 7 St., Lincoln, Nebr., $563,626. Bids 1/25. Dougher, Rich & Woodburn, 302 Garver Bldg., Des Moines, archts.

La., Crowley—COURTHOUSE—Acadia Parish Police Jury, Crowley, general contract 3 story, 45, 800 sq. ft. brick, rein.-con. courthouse, to R. P. Farnsworth & Co., Inc., 1515 S. Salcedo St., New Orleans, $572,790. Bids 2/14. CD 1/5.

La., Monroe—POWER PLANT—City, municipal power plant exten., to Thomas Bryan & Assoc., Inc., 620 M. & M. Bldg., Houston 2, Tex., $559,000, Bids 1/25. CD 1/31, under LB.

Md., Frederick—HOSPITAL—Frederick City Hospital, Park Ave., 2 story, bsmnt., 84x85 ft., brick, block, steel, north wing addn.; 1 story, 40x80 ft. brick, block, steel, south wing addn.; 3 story, 45x78 ft. brick, block, steel nurses home, Frederick Memorial Hospital, to Wm. T. Lyons Co., 1001 Tower Bldg., Baltimore, $622,321. Bids 1/25. CD 2/1, under LB.

Mass., Hanson—SCHOOL—Town, Bd. Educ., Town Hall, 2 story, bsmnt., brick, steel school, Indian Head St., to Platt Constr. Co., Inc., 99 First St., Cambridge, $574,400. Bids 2/3. CD 2/1.

Minn., Wayzata—SCHOOL—Bd. Educ., C. H. Meyer, clk., general contract 3 story school, to F. O. Watson, Co., 450 Baker Bldg., Minneapolis, $659,599. Bids 2/1. CD 2/9, under LB.

N. J., Trenton—SCHOOL—Ewing Twp. Bd. Educ., Parkway Ave., general contract 2 story high school, Ewing Twp. to Wm. C. Ehret, 209 Academy St., $759,145. Bids 2/1, awarded 2/6. CD 2/9, under LB.

† **N. M., Las Cruces**—LABORATORY—U. S. Eng., Box 1538, Albuquerque, laboratory, air-condit oning, compressed air sys., White Sands Proving Grounds, Eng-20-005-50-15, to Robert E. McKee, Box 1706, Santa Fe, $832,552. Est. $750,000. Bids 1/22, awarded 2/8. CD 2/1, under LB.

Pa., Upper Darby—SCHOOL—Upper Darby Twp. School Dist., School Lane, school, Bond and Agnew Aves., to M & L Constr. Co., 108 S. 40 St., Phila., $501,099. CD 1/26, under LB.

R. I., Providence—HOUSING—Providence Housing Auth., Joe P. Carroll, chn., 263 Chad Brown St., five 120 unit housing, Codding Court Proj., to Gilbane Bldg. Co., Inc., 90 Calverly St., $935,796. Bids 2/10. CD 1/17.

† **S. C., Parris Island**—WAR MEMORIAL—Pub. Wks., Dpt., Marine Corps Recruit Depot, Parris Island, war memorial bldg. NOY 19119, Spec. 22880, to Claussen-Webster Constr. Co., Augusta, Ga., $678,200. Bids 1/12. CD 11/23.

Tenn., Knoxville—HIGH SCHOOL—Bd. Educ., 624 Lamar St., East Knoxville High School to Daugherty & Waters, Mercantile Bldg., $846,683. Bids 1/25. CD 2/1, under LB.

Tex., Bryan—POWER PLANT—City (2nd unit) municipal power plant, Owner builds. $625,000. Bids 12/30 rejected. CD 11/29.

Tex., Commerce—ADMINISTRATION, etc.—East Texas State Teachers College, Commerce, administration and industrial educ. to Hal C. Dyer, Lone Star Gas Bldg., Dallas, $512,000. Bids 2/8, awarded 2/15. CD 2/15, under LB.

Tex., Kingsville—ADMINISTRATION-LIBRARY—Texas College of Arts & Industries, Kingsville, administration-library, to Hill & Combs, 321 Melrose Pl., San

Antonio, $519,440. Bids 2/7, awarded 2/9. CD 2/13, under LB.

Tex., Lamarque—HOSPITAL—Galveston Co., Courthouse, 100 bed county hospital, to Texas Gulf Constr. Co., 2008 S. Wayside St., Houston, $846,000. Bids 1/30, awarded 2/15. CD 2/2.

B. C., Esquimalt—HOUSING—Central Mortgage & Housing Corp., 360 Homer St., Vancouver, 91 housing units, to Commonwealth Constr., Ltd., 616 Hillside Ave., Victoria, $561,299. Bids 12/12, awarded 2/4. CD 11/30.

COMMERCIAL BUILDINGS

BIDS ASKED

Conn., Meriden—HOSPITAL—B.A. 3/7—Meriden Hospital, 181 Cook Ave., 3 story, brick, steel, concrete hospital addn., Cook Ave., $500,000. Ebbets Frid & Prentice, 862 Asylum Ave., Hartford, archts. CD 11/9/45.

Ala., Marion—HALL—B.A. 3/14—Judson College, Marion, Jewett Hall. $600,000. Extended date. Warren, Knight & Davis, Protective Life Bldg., Birmingham, archts. CD 2/21.

▲ **Pa., Phila.** — SCHOOL — B.A. 3/15 — University of Pennsylvania, 209 S. 36 St., Wharton School. $2,000,000. McKim, Mead & White, 101 Park Ave., New York, N. Y., archts. CD 2/19/48.

O., Toledo—Y. W. C. A. BLDG.—Bids Asked—Young Womens Christian Assn., Mrs. Ford R. Weber, pres., 1018 Jefferson St., 2 story, (ultimately 6 story) bsmnt., 100x100 ft. Y. W. C. A. annex, incl. swimming pool, gymnasium, offices, etc. 11 St. near Jefferson Ave. $400,000. Bellman, Gillett & Richards, 518 Jefferson St., archts. CD 4/25/46.

Tex., Houston—APARTMENTS—Bids Asked—Goodell & Co., 2103 Crawford St., 88 apartment units. $440,000. CD 2/10.

Tex., Texas City—HOTEL—Bids Asked—Hotel Constr. Co., Texas City, 7 story, bsmnt. rein.-con. hotel, concrete pier and beam fdn. $900,000. J. R. Tabor & Assoc., Union Natl. Bank Bldg., Houston, archts. CD 12/20/48.

▲ **Que., Montreal** — PHYSICS and CHEMICAL — Bids Asked—McGill University, Montreal, physics and chemical bldg. $1,028,481. McDougall, Smith & Fleming, 1235 McGill College Ave., archts. CD 12/1/48.

SOON LETS CONTRACT

Ill., Chicago—APARTMENTS—H. S. Greenwald & Sam N. Katzin, 50 and Cornell Sts., Zone 15, soon lets contract (1st unit) six 14 story, concrete apartments, $800,000. Pace Assocs., 53 W. Jackson St., Zone 4, archts. Mies Vander Rohe, 37 S. Wabash Ave., Zone 3, and Holsman, Holsman, Kekamp & Taylor, 39 S. State St., Zone 3, assoc. archts. CD 1/12.

Mich., Detroit—COMMERCIAL—Schmidt, Traugott & Sons, 508 Monroe St., soon lets contract 3 story, 60x300 ft., rein.-con. brick, commercial bldg. $500,000. L. R. Hoffman, 1143 Buckingham Ave., Grosse Pointe Park, archt.

Pa., Pittsburgh—SUNDAY SCHOOL—Third Presbyterian Church, 5 and Negley Sts., soon lets contract 2 story, bsmnt., stone, steel sunday school and recreation addn., 5 and Negley Sts., $500,000. A. Hensel Fink, 1700 Arch St., Phila., archt. CD 3/25/48.

R. I., Natick—CONVENT—Sacred Heart Roman Catholic Parish, Natick, soon lets contract 2 story, bsmnt., brick, steel convent. Oresto Di Saia, 703 Gardner Bldg., Providence, archt.

Tex., El Paso—MERCANTILE—J. J. Newberry Co., 1001 E. Yandell Blvd., soon lets contract 4 story, bsmnt., mercantile, remodeling 2 concrete frame bldgs., 120x148 ft. $250,000. Carroll & Daeuble, 1001 Yandell Blvd., archts. Landauer & Guerrero, 4801 Lemmon St., Dallas, engrs.

Wis., Stevens Point—SCHOOL—St. Stanislaus Catholic Congregation, Stevens Point, soon lets contract 2 story, 62x200 ft., steel, brick parochial school addn., concrete fdns., floors. Bids 6/10 rejected, L. B. $389,000. F. J. Stepnoski & Sons, 104 S. Main St., Fond du Lac, archts. CD 6/22, under LB.

LOW BIDDERS

Mass., Concord—HOSPITAL—Emerson Hospital, Rd. to Nine Acre Ave., Feb. 15, 3 story, brick, steel, concrete hospital addns., alterations, from J. J. Powers Co., 238 Main St., Cambridge, $582,400. CD 1/27.

S. C., Anderson—APARTMENT—J. C. Long, 88 Broad St., Charleston, 5 story apartment, from M. B. Kahn Constr. Co., 1113 Blossom St., Columbia, $320,000.

S. C. Greenwood—APARTMENT—J. C. Long, 88 Broad St., Charleston, 5 story apartment, from M. B. Kahn Constr. Co., Columbia, $320,000.

S. C., Orangeburg—APARTMENT—J. C. Long, 88 Broad St., Charleston, 5 story apartment, from M. B. Kahn Constr. Co., 1113 Blossom St., Columbia, $320,000.

S. C., Rock Hill—APARTMENT—J. C. Long, 88 Broad St., Charleston, 5 story apartment, from M. B. Kahn Constr. Co., 1113 Blossom St., Columbia, $320,000.

S. C., Sumter—APARTMENT—J. C. Long, 88 Broad St., Charleston, 5 story apartment, from M. B. Kahn Constr. Co., 1113 Blossom St., Columbia, $320,000. CD 11/9.

Tex., Dallas—CHURCH—Skillman Street Church of Christ, Marquita and Vanderbilt Sts., church, from Meers Constr. Co., Great Natl. Life Bldg. $438,888. R. L. Rolfe, 2204 Griffin St., and Herman Blum, 2812 Fairmount Sts., engrs. CD 8/12.

▲ **Que., Amos**—SEMINARY—Roman Catholic Diocese of Amos, 1 2nd Ave. W., Grand Seminary, from Frere Cie Ltd., 1 Ave. West. Approx. $1,200,000. CD 2/1.

CONTRACTS AWARDED

Ala., Bessemer—OFFICE—Southern Bell Telephone Co., Hurt Bldg., Atlanta, Ga., dial toll office bldg., to Brice Bldg. Co., 130 S. 13 St., Birmingham. Approx. $250,000.

Ala., Birmingham—GYMNASIUM—Catholic Diocese, c/o contractor, gymnasium, Highland Ave. and 23 St., to Daniel Constr. Co., 822 7 Ave. S., Approx. $250,000.

Ala., Birmingham—HOMES—Durwood Rivers, 3709 3 Ave. S., 60 homes, day labor, $500,000.

Ala., Decatur — APARTMENT UNITS, etc. — Sheridan Apartments, c/o contractor, 52 apartment units and shopping center, to Homer Hutchinson, Decatur, Approx. $250,000.

▲ **Calif., Compton** — DWELLINGS — Southern California Investment Co., 10820 Atlantic Blvd., Lynwood, 96 frame, stucco dwellings in Tract 16291. Owner builds. $1,000,000. Sponsellor & Sons, 1226 W. 58 St., Los Angeles, archts.

Calif., Downey—DWELLINGS—Larwood Co., 307 W. 8 St., Los Angeles, 48 frame, stucco dwellings on Tract 14677, to Robert J. Erwin, 307 W. 8 St., Los Angeles. $265,000.

Calif., Fontana—DWELLINGS—Hadley-Cherry Co., 8754 Beverly Blvd., Los Angeles, 154 frame, stucco dwellings on Tract 3548. Owner builds. $893,200. Roland Russell, 3543 Fletcher Dr., Los Angeles, archt.

Calif., Los Angeles—DWELLINGS—Calbing Corp., 9700 W. Pico St., 117 frame, stucco dwellings at Sherman Way and Amestoy Sts., Sherman Way Homes, Owner builds. $900,000. Wm. Bray, 5670 Wilshire Blvd., archt.

Calif., Los Angeles—DWELLINGS—Coronet Constr. Co., 5733 Lankershim Blvd., 89 frame, stucco dwellings, Van Owen and Archwood Sts., Ranchito and Cantaloupe Aves. Owner builds. $535,000. E. H. Fickett, 5678 Wilshire Ave., archt.

Calif., Los Angeles—DWELLINGS—Republic Homes, 354 S. Spring St., 79 frame, stucco dwellings Burbank and Noble Sts., to S. & E. Co., 554 S. Spring St., approx. $592,500. Wm. Bray, 5670 Wilshire Blvd., archt.

▲ **Calif., Los Angeles**—DWELLINGS—Sherman Park Development Co., 1150 S. Beverly Dr., 215 frame, stucco dwellings in Tract 14425. Owner builds. $1,199,200. Edward H. Fickett, 5788 Wilshire Blvd., archt.

Calif., Norwalk—DWELLINGS—Milton Kauffman, Inc., 2918 W. Compton Blvd., Gardena, 110 frame, stucco dwellings Dartmore, Seaforth, Fallo and Wheatstone Aves. Owner builds. $661,900. CD 8/14/47.

Calif., Pasadena—DWELLINGS—Lomita Square Corp., 815 Yale St., Los Angeles, 51 frame, stucco dwellings, Cliff Rd. at Hastings Ranch, to Murphy Bros. Ltd., 817 Yale Ave., Los Angeles, Approx. $650,000. Stewart Jackson, 815 Yale Ave. archt.

▲ **Calif., Rivera**—HOUSES—Gabriel Realty Co., 945 N. LaCienega St., Los Angeles, 183 frame, stucco houses, in Tract 14580, to Walter Bollenbacher, 945 N. LaCienega St., Los Angeles, Approx. $1,007,130. Frank Green 1515 Chevy Case, Glendale, archt.

Calif., South San Francisco—RESIDENCES—Brentwood Co., 5401 Mission St., San Francisco, 65 residences, Wildwood, Hazelwood, Rosewood, and Briarwood Sts., Owner builds. $510,000.

Calif., Torrance—DWELLINGS—Todd Constr. Co., 1150 S. Beverly Dr., Los Angeles, 102 frame, stucco dwellings, 174 St., Faysmith, Erminita and Yukon Aves., to Halper Constr. Corp., 379 N. Highland Ave., Los Angeles. $631,200. Southwest Drafting Service, 2724 W. Florence Ave., Los Angeles, archts.

Calif., Torrance—DWELLINGS—Truman Enterprises, 4320 Imperial Hy., Inglewood, 57 frame, stucco dwellings in 18100 block of Regina Ave. Owner builds. $262,500. Hugh Gibbs, 441 E. 1 st., Long Beach, archt.

Calif., Upland—DWELLINGS—Hirsh-Edmunds Bldg. Co., 1044 S. Robertson St., Los Angeles, 82 frame, stucco dwellings in Tract 3500. Owner builds. $536,226. Max Maltzman, 5014 W. Jefferson St., Los Angeles, archt.

Colo., Denver—DEPARTMENT STORE—Louis W. Mack, Mack Bldg., general contract 6 story, bsmnt., 132,000 sq. ft. 100x125 ft. department store, to Mead & Mount Constr. Co., 422 Denver Natl. Bldg., Denver, $939,000. Bids 2/3. CD 2/7, under LB.

Conn., Stamford—SCHOOL, etc.—St. Mary's Roman Catholic Parish, Rev. Dennis Gleason, pastor, 556 Elm St., 2 story, bsmnt., brick, concrete school, convent, Bedford St., to Gulhane-Dooley Inc., 101 Park Ave., New York, N. Y., Approx. $250,000. Bids 2/7. CD - 1/19.

Fla., Hallandale—HOMES—Zaret Constr. Corp., 1901 West Avenue, Miami Beach, 154 homes for colored. Owner builds. $900,000.

Fla. Jacksonville—DWELLINGS—Larence C. Pearce Corp., 1202 King Ave., Zone 7, 180 family dwellings in Arlington and Spring Park suburbs. Owner builds. $975,000. Awarded 2/17.

Fla., Miami—OFFICE—Five-Fifty, Inc., c/o contractor, 6 story, 56x218 ft. office, to J. Y. Gooch Co., Inc., 1208 Congress Bldg., Miami. $557,796. Bids 12/21. CD 12/30, under LB.

Fla., Venice—HOTEL—Joseph Spadaro, Boca Grande Inn, Venice, hotel, Owner builds. Approx. $300,000.

Ga., Atlanta—RESIDENTIAL DEVELOPMENT—Wagnon & Wagnon, 753 Edgewood Ave. N. E., residential development, Glenwood Ave. Owner builds. $250,000.

Ga., Marietta—HOMES—L. M. Harris, 873 Washington St. S. W., Atlanta, 45 homes. Owner builds. Approx. $250,000.

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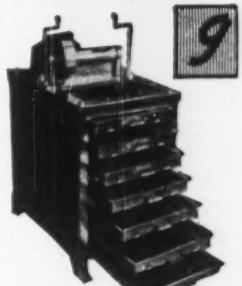

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PITTSBURGH, PA.

Ill., Chicago—OFFICE, etc.—Admiral Corp., 1901 N. Springfield St., Zone 47, 144,000 sq. ft., steel, concrete, brick office, warehouse and factory, to Carl E. Erickson Co., 4657 N. Ravenswood St., Zone 40, $800,000. Awarded 2/8. CD 1/4.

Ill., Franklin Park—HOMES—Reuter Home Builders, 7177 W. Grand St., Chicago, Zone 39, 100 one story, brick homes, to Sullivan Constr Co., 400 W. Madison St., Chicago, Zone 6, $700,000. Vitzthum & Burns, 1 N. La Salle St., Chicago, Zone 2, archts.

Ia., Dubuque—HOUSING—John G. Miller Constr. Co., 222 W. Mullan St., Waterloo, multiple housing. Owner builds. $350,000.

La., Algiers — HOUSING — J. N. Harsh, Inc., General Meyers Ave., 115 houses. Owner builds. Approx. $750,000.

Md., Bethesda—CHURCH—Our Lady of Lourdes Catholic Church, 4403 East-West Hy., 2 story, brick, limestone, church and chapel, 4517 East-West Hy., to F. H. Martell Co., 1023 - 20 St. N. W., Wash., D. C. $348,660. Awarded Schreier, Patterson & Worland, 1420 K St. N. W., Wash., D. C., archts.

Mass., Bourne—HOUSING—Mashnee Village, Inc., Mashnee Island, 100 single frame housing, Mashnee Island, $900,000, Owner builds, Lloyd M. Hendrick, Main St., Buzzard Bay, archt.

▲ **Minn., Minneapolis**—OFFICE—Minneapolis & St. Louis R.R. Co., C. S. Wetherell, ch. engr., Northwestern Bank Bldg., general contract 2 story office bldg., Franklin Ave. between 1 and Stevens Aves., to J. Leck Co., 211 S. 11 St., Approx. $1,000,000. C. W. Smith, 1004 Marquette Ave., archt. CD 4/28.

Miss., Greenville—HOUSING—John McCorkle, c/o Queen City Lumber Co., Greenville, 100 houses. Owner builds, approx. $500,000.

▲ **N. J., Camden**—APARTMENTS—Dominick Di Nunzio, and Otto D'Anatasio, 101 N. 7 St., Sheridan Apartments, 10 and Van Hook Sts., $688,000; Sheridan Apartment Annex, 10 and Van Hook Sts., $384,000, separate contracts. Dante D'Anatasio, 1815 Federal St., archt.

N. J., North Brunswick Twp.—RESEARCH CENTER, etc. —Johnson & Johnson, 500 George St., New Brunswick, research center and office, on 90 acre site, to John W. Ryan Constr. Co., Inc., 469 Lexington Ave., New York 17, N. Y., $500,000. A. P. Morgun, 32 E. 67 St., New York, 21, N. Y., archt.

N. J., Pleasantville—RESIDENTIAL DEVELOPMENT—West Side Development Co., 1201 Atlantic Ave., Atlantic City, residential development, Washington Ave., etc., to Warren Builders, Inc., Harding Hy., Mays Landing, $800,000.

▲ **N. J., Woodbury**—RESIDENTIAL DEVELOPMENT—Paulsboro Building Corp., 814 N. Broad St., residential development, Sowers Estate, separate contracts. $1,000,000. Dante J. D'Anastasio, 1815 Federal St., Camden, archt.

N. Y., Forest Hills—APARTMENT—Samuel J. Lefrak, c/o Julius Fishkind, archt., 141 Broadway, New York, Zone 6, 6 story apartment, Wetherole St. and 66 Ave., separate contracts. $750,000. CD 12/6.

N. Y., Grymes Hill (Staten Island)—DORMITORY, etc. —B.A. 3/6—Wagner College, 631 Serpentine Rd., girls dormitory, $300,000; gymnasium and field house, $400,000. Bessell & Matz, 213 E. 38 St., New York, Zone 16, archts.

N. Y., New York—GYMNASIUM—Mount St. Michaels Academy, 4300 Murdock Ave., Zone 66, 2 story gymnasium, Nereid and Murdock Aves., to William A. Gerbusse Inc., 101 Park Ave., Zone 17. Approx. $700,000. Bids 12/14. CD 11/21.

O., Cleveland—HOMES—Garfield Housing Auth., 56-74 Turney Rd., Garfield Heights, seventy 1½ story, frame homes, E. 185 and W. 187 St., separate contracts. $630,000.

▲ **O., Cleveland**—HIGH SCHOOL—Sisters of St. Domicile, St. Joseph Academy, Adrian, Mich., 2 story, bsmnt., Hoban High School, Harvard and E. 183 Sts., to Brown Constr. Co., 2520 Payne Ave., Est. $1,250,000. Bids 2/6, awarded 2/10.

▲ **O., Lorain**—HOMES—O. A. Hafely, Inc., 2414 Garfield Blvd., 117 homes, storm and sanitary sewers, paving, water mains in Cleveland Ave., North and South Jefferson Sts., Garfield Blvd., Hafely Ave., separate contracts. $1,000,000.

▲ **O., Shaker Heights**—APARTMENTS—Morris Appelbaum, 3270 Warrensville Center Rd., 2½ or 3 story, 35 suite apartment, North Park and Fairmont Blvd., $250,000, five 45 suite 4 story, brick apartments, 3290 and 3300-3310 Warrensville Center Rd., $850,000, separate contracts. M. P. Halpern, Euclid-71st Bldg., Cleveland, archt.

▲ **O., Shaker Heights**—BUILDINGS—Harry Dolinsky, 2180 Fenwick St., 10 bldgs., 8 suites each, 3725-55 Warrensville Center Rd., separate contracts. $1,000,000. Pasqual R. Laurie, Schofield Bldg., Cleveland, archt.

▲ **O., Toledo**—HOUSING—Schutz Constr. Corp., 503 W. Bancroft St., 104 ranch-type 1½ story dwellings, Washington Twp. between Kenwood Blvd. and W. Central Ave. east of Evergreen Rd. Owner builds, $1,600,000.

▲ **Pa., Ambler** — RESIDENTIAL DEVELOPMENT — Whitemarsh Downs, Inc., 1505 Race St., Phila., residential development, separate contracts, $2,000,000. Leopold Hauft Jr., 101 Walsh Rd., Landsdowne, archt.

Pa., Butler—LODGE—B. P. O. Elks, Butler, irregular sized brick, steel lodge, to Tracon Sales & Constr. Co., R. D. 5, Butler. Approx. $250,000. Walter Wimer, 318 Pearl St., archt. Inc.

▲ **Pa., Phila.**—RESIDENTIAL DEVELOPMENT—Benjamin A. Dintenfass, 1325 Walnut St., residential development, Somerdale, Elmhurst and Lagoon Aves., separate contracts, $1,000,000. G. Harold Murphy, 1621 Sellers St., archt.

Pa., Phila.—RESIDENCES—Owner, c/o Berman Bros., Inc., 6032 Market St., residential development, Bridge St., separate contracts. $600,000.

Pa., Pittsburgh — CHURCH, etc. — St. Henry's Roman Catholic Congregation, Arlington Ave. and Chares Sts., church and rectory addn., to D. Carapellucci Co., 130 Maytide St., Approx. $250,000. Marlier & Johnstone, Empire Bldg., archts. CD 2/26/47.

Pa., Pittsburgh—MOSQUE—Syria Temple Improvt. Assn., Bigelow Blvd., Syria Mosque alterations, addns., Bigelow Blvd., to Crump Co., Inc., 408 Bigelow Blvd., Approx. $250,000. James E. Tillitson Perrysville archt.

Pa., Yardley—RESIDENCES—Penn Valley Constructors, Inc., 20 N. Penna Ave., Morrisville, residential development, Yardley Dr., separate contracts. $700,000.

Tenn., Memphis—HOMES—Margolin Bros., c/o Furbinger & Ehrman, archts., Union Planters Natl. Bank Bldg., 108 homes in Vaughn Village. Owner builds. Approx. $500,000.

Tex., Alice—MERCANTILE—Dr. F. A. Buss, Alice, mercantile to J. C. Lowery Co., Mission, $256,100. CD 1/11.

Tex., Alice—HOUSING—Ed Collins & Sidney A. Aparks, Alice, 6 apartments, own forces. Approx. $250,000. CD 1/31.

Tex., Dallas—DUPLEXES—L. & G. Corp., 3336 Inwood Rd., 210 two story duplexes, own forces. Approx. $850,000. CD 1/13.

Tex., Dallas—DWELLING, etc.—M. L. & S. M. Merrick, 1423 Renner St., dwelling and apartment proj. Owner builds. Approx. $250,000. CD 2/13.

Tex., Ft. Worth—RESIDENCES—Worth Builders, 603 First Natl. Bank Bldg., 98 residences, South Part Addn., Owner builds, $505,750.

Tex., Houston—RESIDENCES—B. A. Gilbert & Dealy Smallwood, 5601 Airline Dr., 75 residences, to Gilbert Lumber & Bldg. Co., 5601 Airline Dr. Approx. $525,000. CD 2/2.

Tex., Houston—DWELLINGS—Gilbert Lumber & Building Co., Homestead Terrace Addn., 98 dwellings, to Gilbert Building Co., Homestead Terrace Addn. Approx. $555,000. CD 2/6.

Tex., Houston—RESIDENCES—Home Owned Properties, Scanlan Bldg., 75 addnl. residences, Armsted Acres. Owner builds. $300,000. CD 2/10.

Tex., Houston—DWELLINGS—W. E. Robertson Constr. Co., 1537 Gardenia St., 42 Negro dwellings. Owner builds. Approx. $250,000. CD 2/10.

Tex., Houston — DWELLINGS—Scott Terrace Housing Corp., c/o Morris Nadelman, 6016 Scott St., 125 dwellings, adjacent Old Spanish Trail Rd. Owner builds. Approx. $950,000. CD 2/2.

Tex., Houston—DWELLINGS—Scott Terrace Housing Corp., 6016 Scott St., 100 dwellings adjacent O. S. T. theatre, Owner builds. Approx. $700,000. CD 2/22.

Tex., Houston—DWELLINGS—Sunset Homes, Inc., c/o Forest Oaks, 108 dwellings. Owner builds. Approx. $750,000. CD 2/2.

Tex., San Antonio—DUPLEXES—E. J. Burke & Sons, 4220 S. Zarzamora St., 100 duplexes. Owner builds. Approx. $600,000. CD 1/26.

Tex., San Antonio—DWELLINGS—H. B. Zachry Properties, Box 2570, 50 dwellings, to Zachry Const. Co., Transit Tower. Approx. $600,000. CD 2/2.

Tex., San Antonio—DWELLINGS—H. B. Zachry Properties, Box 2570, 25 addnl. dwellings, in Terrell Hills, to Zachry Constr. Co., Transit Tower. Approx. $285,000. CD 2/2.

Va., Richmond—APARTMENT—Robert J. Dailey, 2204 Park Ave., 160 apartment units. Owner builds. Approx. $500,000.

▲ **Wash., Seattle**—STORE—Marshall Field & Co., 25 E. Washington St., Chicago, Ill., general contract 5 story Frederick & Nelson Department Store addn., to Henrik Valle Co., Inc., 407 3 Ave. W. Total est. Approx. $6,500,000. CD 6/16.

Wis., Madison—APARTMENT—Farley Land Co., Madison, four 2 story, bsmnt., 27x60 ft., brick, apartments block fdns. Owner builds, $500,000.

▲ **Que., Amos**—SEMINARY—Roman Catholic Diocese, Bishop Desmarais, 1 and 2 Aves., seminary, to Simard & Brother Co. Ltd., 14 First Ave., $1,200,000. CD 2/21, under LB.

INDUSTRIAL BUILDINGS

BIDS ASKED

Ala., Anniston—SALES and SERVICE—B.A. 3/8—Anniston Motor Co., c/o Charles H. McCauley, archt., Jackson Bldg., Birmingham, auto sales and service addns., alterations. CD 2/21.

▲ **O., Troy**—PLANT—B.A. 3/9—Braun Bros. Packing Co., Troy, packing plant on 35-acre site between Miami River, N. Y. C. R.R. and Dye Mill Rd., $1,000,000. Henschlen, Everds & Crombie, 59 E. Van Buren St., Chicago, Ill., archts.

Ga., Monroe—MILL—B.A. 3/10—Monroe Cotton Mills, Monroe, cotton mill addns. J. E. Sirrine Co., Greenville, S. C., archt.

SOON LETS CONTRACT

Ind., Indianapolis—WAREHOUSE, etc.—Peasley-Gaulvert Paint & Varnish Co., 223 N. 15 St., Louisville, Ky., soon lets contract 1 story, 55x149x149x176 ft., irregular shaped, brick, rein.-con., structural steel warehouse and office, Rembrandt St. and Stadium Dr. $300,000.

Thomas J. Nolan, Kentucky Home Life Bldg., Louisville, Ky., archt.

▲ **Kan., Kansas City**—PLANT—International Harvester Co., 180 N. Michigan Ave., Chicago, Ill., soon lets contract branch bldg., on 33 acre tract in Fairfax Dist., located between White Eagle Rd. and Kindleberger Rd., with 2 north and south streets, (McCormick and Harvester Sts.) to be cut through. Approx. $3,000,000. CD 2/14.

Mich., Detroit—WAREHOUSE—Davison Bros., Inc., c/o Chas. N. Agree, archt., 1140 Book Bldg., soon lets contract 1 story, 325x353 ft., structural steel, masonry warehouse addn., $500,000. CD 12/19.

Minn., Minneapolis—SHOP—General Electric Co., 630 Plymouth Bldg., soon lets general contract 1 story, 127x141 ft. apparatus service shop at Newton and 49 Aves. N. Approx. $85,000. Larson & McLaren, 1901 Foshay Tower, archts.

Tenn., Decherd—FACTORY—Patton Mfg. Co., c/o Steinbaugh & Wheeler, archt., Presbyterian Bldg., Nashville, soon lets contract factory.

Wis., Sheboygan—PLANT—Wisconsin Power & Light Co., 122 W. Washington St., Madison Bldg., soon lets contract 70x119 ft. concrete, steel, brick Edgewater Generator Plant addn. Sargent & Lundy, 140 S. Dearborn St., Chicago, Ill., engrs. CD 8/19/48.

Ont., London—FACTORY—M. M. Dillon, engr., Bank of Toronto Bldg., soon lets contract 2 story, bsmnt., 55x110 ft., rein.-con., steel, brick factory addn., for Empire Brass Co., Dundas St. E. $100,000.

Ont., Windsor—PLANT—R. Jones, purch. agt. Crysler Corp. of Canada Ltd., 300 Tecumseh Blvd. E., soon lets contract north exten. 2 story 80x360 ft., south exten. 240x360 ft., brick, steel of Plant 3. Approx. $800,000.

LOW BIDDERS

Fla., Miami—WAREHOUSE—Railey-Milam Inc., c/o low bidder, warehouse, from Witters Constr. Co., 1297 S.E. 10 Court, Hialeah. $73,840. CD 2/9.

Ga., Atlanta—TERMINAL—Dixie Ohio Express c/o Abreu & Robeson, archts., 22 Marietta St., Bldg., Atlanta. Feb. 15, truck freight terminal, from Maynard Johnston & Co., 31 Brownlee Rd. S.W., $95,815. CD 2/9.

R. I., Providence—WAREHOUSE—Schlitz Beer, What Cheer Bottling Co., 409 Charles St., rejected bids 1 story, 75x135 ft., brick, concrete warehouse, Silver Spring St. $68,000. Revising plans. Arthur Campopiano, 509 Westminister St., archt.

CONTRACTS AWARDED

Ga., Dudley—WAREHOUSE, etc.—The Oconee Electric Membership Corp., Dudley, warehouse and office, to Cote Somers Co., Vidalia. Approx. $75,000. Bids 2/14. CD 12/5.

▲ **Ill., Cicero**—FACTORY—Hotpoint Co., 16 and 54 Ave. 1,000,000 sq. ft. steel, brick, concrete refrigerator factory, to Abell-Howe Co., 53 W. Jackson St., Chicago. Zone 4. $12,000,000. Awarded 2/15. CD 2/7.

Ia., Newton—PLANT—The Maytag Co., Newton Plant 2 addns., incl. one 300x300 ft. automatic electric clothes dryer plant and one 100x700 ft. warehouse addn., to Arthur H. Neumann & Bros., Inc., 514 Hubbell Bldg., Des Moines. $600,000. CD 2/7.

Kan., Kansas City—GARAGE—Merle J. Gatchell, Route 4, Kansas City, garage, B and Nebraska Sts., to Waters Constr. Co., 1803 Argentine St., Kansas City, Kan. $100,000. U. S. Post Office Dpt., lessee.

▲ **Kan., Pittsburg**—PLANT—Spencer Chemical Co., Pittsburg, fertilizer plant, to Quaker Valley Constr., Inc., Pittsburg. $1,000,000.

▲ **Mich., Detroit**—POWER STATION—The Detroit Edison Co., 2000 2 St., 11 story, 145x327 ft., masonry, structural steel, Conners Creek Power Station superstructure, to O. W. Burke Co., 1032 Fisher Bldg. Approx. $4,500,000. Awarded 2/6.

Minn., Mankato—PLANT, etc.—Archer Daniels Midland Co. (grain processors) general contract one 5 story and one 3 story solvent extraction plant and 1 steel, masonry warehouse, to Eric Carlstrom Constr. Co., Mankato, approx. $68,000. Bids 2/6. CD 1/31.

▲ **O., Cleveland**—PLANT—Cleveland Electric Illuminating Co., 75 Public Square, turbine locomotive boiler, electric houses and service bldg., superstructure for power plant at Lake Shore Plant, 712 E. 70 St., to Hunkin-Conkey Constr. Co., 1740 E. 12 St. Approx. $1,000,000. Awarded 2/14.

R. I., Providence—FACTORY—Coro, Inc., Point St., 3 story, bsmnt., 45x62 ft., brick, steel jewelry factory addn., South and Point Sts., to E. Turgeon Constr. Co., Inc., 42 Weybosset St. Approx. $90,000. Barker & Turoff, 10 Weybosset St., archts.

R. I., Warren—FACTORY—S. E. Rains Co., Inc., 569 Main St., 2 story, bsmnt., 70x100 ft., concrete block, frame factory addn., alterations, to E. J. Sevigny Contg. Co., 16 Franklin St. Approx. $68,000. Wm. O'Rourke, 10 Hill St., archt.

Tex., Corpus Christi—SHOP, etc.—Williamson Motor Co., 1223 N. Walter St., auto shop, service, parts, storage own forces. Approx. $90,000. CD 9/29/48.

Tex., Dallas—SUB-STATION—Dallas Power & Light Co., Dallas Power & Light Bldg., addl. power substation in outlying district. Owner builds. $550,000. CD 5/13.

Tex., Dallas—PLANT—Wamix, Inc., 4839 Bengal St., cement concrete mixing plant. Owner builds. $100,000. CD 11/15.

Tex., McAllen—PLANT—Coca Cola Bottling Co., McAllen, plant remodeling, expanding, own forces. $70,000. Zeb Rike Nelson Bldg., archt.

Tex., Mineral Wells—PLANT—Brazos River Gas Co., Mineral Wells, absorption plant unit, own forces. $375,000. CD 9/20.

Que., Ste. Therese—FACTORY—Blackwood-Morton & Son, Ltd., c/o 4059 Beaconsfield Ave., Montreal, factory and office Ste. Therese Hy., to Louis Donolo, Inc., 8320 St. Laurence Blvd., Montreal. Approx. $400,000. Beaulieu & Lebel, 3536 Ste. des Neiges Rd., Montreal, engrs.

UNCLASSIFIED

BIDS ASKED

Que., Montreal — SHIPLOADERS — B.A. 3/6 — C. P. Buckley, secy., National Harbors Bd., West Block, Ottawa, Ont., traveling shiploaders at Sheds 12 and 14, Jacquest Cartier Pier, Montreal Harbor. Approx. $300,000. CD 1/28/48.

Nebraska—RURAL DISTRIBUTION LINES—B.A. 3/8—Howard-Greeley Rural Public Power Dist., St. Paul, labor for 342 mi. rural distr. lines, Howard and Greeley Counties. $120,000. H. S. Nixon Eng. Co., W. O. W. Bldg., Omaha, engr.

N. S., Pugwash—WHARF REPAIRS—B.A. 3/8—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf repairs, Approx. $307,000. R. Blais, c/o owner, engr. CD 3/13/47.

Fla., Jacksonville—LIGHTING SYSTEM—B.A. 3/9—City, City Hall, installing lighting sys. at Randall Ave. and Talleyrand Sub-Station, Adv 2-2542. Plans deposit $2. Reynolds, Smith & Hills, 227 Park St., Zone 1, engrs.

† **N. C., Camp Lejeune**—LIGHTING—B.A. 3/10—Pub. Wks. Office, Bldg. 1005, Marine Barracks, sport lighting of baseball diamond and/or football field at Marine Barracks. Spec. 23801. Plans deposit $10.

† **Montana**—B.A. 3/14—STRUCTURAL STEEL—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., furnishing misc. structural steel for roof framing and crane runway, Canyon Ferry Power Plant, Helena-Great Falls Division, Canyon Ferry Unit, Mont., Missouri River Basin Proj., Spec. 2919.

Nebraska—RURAL DISTRIBUTION LINES—B.A. 3/14—A. B. R. Electric Membership Corp., Ainsworth, 14.71 mi. rural distr. lines and 5 substations in Brown, Cherry, Rock and Keya Paha Counties. $90,000. Raymond H. Reed & Co., Columbus, consult. engrs. CD 8/12.

† **Pa., Erie**—LANDSCAPE DEVELOPMENT—B. A. 3/14—U. S. Eng., Niagara and Bridge Sts., Buffalo, N. Y., landscape development of veterans Hospital.

Ont., London—ARENA—B.A. 3/14—T. C. McBride, City Hall, and L. G. Bridgman, 311 Royal Bank Bldg., London, archts., 230x240 ft., rein.-con. Queens Park Arena. Approx. $600,000. CD 11/15.

† **Colorado**—TRANSMISSION LINES—B.A. 3/15—Bureau Reclamation Dpt. Interior, Bldg. 1—A, Denver Federal Center, Denver, Colo. constr. Green Mountain (Kremmling Tap)—Oak Creek 115-kolovolt transmission line, in Grand and Routt Counties, Spec. 2926 L. N. McClellan, ch. engr.

Wis., Madison—**STADIUM**—B.A. 3/15—Bd. Regents University of Wisconsin, 171 Bascom Hall, Zone 6, completion north end of stadium seating and replace 2 sections wooden stands. Plans deposit $25. Ebling, Plunkett & Keymar, 1220 N. Milwaukee St., Zone 2, archts. R. C. Krichoff, Madison, state archt.

† **Arkansas** — WATER TREATING EQUIPMENT — B.A. 3/17—U. S. Eng., 300 Broadway, Little Rock, water treating equipment for Bull Shoals powerhouse, Cotter, Baxter Co.

Nebraska — SUB-STATIONS—B. A. 3/21—Consumers Public Power Dist., Columbus, 115,000 volt substations at Havelock at O St. and at College View, Lincoln. $350,000.

Tex., Alpine—STADIUM—B.A. 3/21—Sul Ross State Teachers College, Alpine, rein.-con. stadium. $50,000. Plans deposit $10. Harvey P. Smith, Natl. Bank Commerce Bldg., San Antonio, archt.

Texas—RURAL DISTRIBUTION LINES—B.A. 3/28—Brazos River Transmission Electric Co-operative, Inc., R. W. Miller, mgr., 902 Amicable Bldg., Waco, 52.4 mi. 69-kv H frame rural dist. lines, Hill and Ellis Counties. $240,000. Plans deposit $25. CD 6/20/46.

† **Virginia, North Carolina**—RAILROAD RELOCATION—B.A. 3/28—U.S. Eng., foot of Front St., Norfolk, relocation Southern Ry., Jeffress to Clarkesville, Biggs Island Proj., Mecklenburg Co. Plans deposit $15. CD 1/6.

O., Oxford—TRANSMISSION LINES—B.A. About 4/1—Dpt. P. Wks., W. O. Linzell, dir., State Office Bldg., transmission lines, electric and steam, excavation, piping, underground conduit, fittings, valves, appurtenances on Campus Miami University. $100,000. Fosdick & Himler, Union Trust Bldg., 4 and Walnut Sts., Cincinnati, engrs.

† **North Dakota**—TRANSFORMERS—B.A. 4/4—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., one 112.5 kva. three 50-kva, one 37.5-kva, two 10-kva, two 5-kva, and three 3-kva transformers; one 600 kva and three 156 kva step-voltage regulators; one 230,000-volt, nine 115,000-volt, five 69,000 volt, eight 46,000 volt, and two 14,400-volt circuit breakers; five 12,500 volt circuit reclosers, three 115,000-volt, four 69,000-volt and four 46,000-volt interrupter switches; two 230,000-volt, twenty-eight 115,000-volt, thirty-six 69,000-volt, fifty-six 46,000 volt, and fifty-four 15,000 volt air switches; six 46,000 volt and thirteen 15,000 volt disconnecting fuses for substations for Central North Dakota power sys., Missouri River Basin Proj., Transmission Div., Spec. 2924.

† **Oregon**—ELECTRICAL, etc.—B.A. 4/5—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., installing electrical and misc. items at McNary Dam, Serial No. CIVENG-45-164-50-92. Plans deposit $75.

† **Oregon**—B.A. 4/12—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., mfg., del. metal-clad switchgear, bus duct, motor control center and power center for McNary Lock and Dam on Columbia River, Serial No. CIVENG-45-164-50-94.

Tex., Houston — DRIVE-IN THEATRE — Bids Asked — Lone Star Theatres, Inc., 308 S. Harwood St., Dallas, 750 auto drive-in theatre. $250,000. Garrison King, 2615 Fannin St., archt. CD 2/10.

SOON LETS CONTRACT

Kansas—RURAL DISTRIBUTION LINES—Sugar Valley Electric Co-operative, Mound City, soon lets contract 140.59 mi. distr. lines, 14.74 mi. conversion, Miami, Linn, Bourbon and Crawford Counties. $160,000. Frank Horton & Co., Lamar, Mo., engrs. CD 2/7.

LOW BIDDERS

Calif., Antioch—EXHIBIT—State Div. Architecture, P. Wks. Bldg., Sacramento, Feb. 15, 1 story, 81x180 ft., steel rigid frame with concrete floors exhibit bldg., for 23rd District Agricultural Assn., from Robt. Bardell, 2733 Lincen St., Oakland. $97,645. CD 1/23.

Calif., San Francisco—MAINTENANCE YARD—Dpt. P. Wks., City Hall, general contract maintenance yard, 2322 Army St. from Wiltweil Constr. Co., 4745 Geary Blvd., $414,777; plumbing and mechanical work, from Jack Rosen, 1672 Mission St., $59,125. CD 1/25.

Calif., San Francisco — CARHOUSE—Public Utilities Comn., City Hall, Geary Car House alterations, addns., from Monson Bros., 475 6 St., $258,883. CD 1/31.

Calif., San Francisco—LIGHTING SYSTEM—Public Utilities Comn., City Hall, Feb. 14, street lighting sys. on Eddy Ellis and O'Farrell Sts. from Mason St. to Van Ness Ave., Spec. 88, from Dahl-Beck Electric Co., 118 Main St. $52,368.

Mich., Detroit—LIGHTING, etc.—State Hy. Dpt., Lansing, Feb. 16, constr. and relocate city lighting and power facilities, altering water sys. on John C. Lodge Expressway from Brainard to Mack Sts. and Gratiot River Ave., U1 82-127, C22 (U1-404 18), Part 2, from Sugden & Sivier, Inc., 2323 E. 8 Mile Rd., Hazel Park. $116,050. CD 1/31.

▲ **N. Y., New York**—RAMP—Port of New York Auth., 111 8th Ave., Zone 11, Feb. 20, steel, concrete ramp connecting Lincoln Tunnel entrance with Bus Terminal, from Corbetta Constr. Co., 220 E. 42 St., Zone 17, $1,221,700.

▲ **Que., Montreal**—CONCRETE PIPE—City, J. A. Mongeau, city clk., mfg., supply concrete pipe, Contr. 30, from Pressure Pipe Co. of Canada Ltd., 5905 Clairenald Ave., Approx. $1,281,370.

CONTRACTS AWARDED

Ind., Indianapolis—BARN—Indiana State Fair Bd., State Fair Grounds, E. 38 St., general contract 1 story, 114x372 ft., brick, concrete, steel, heavy mill horse barn addn., to H. D. Tousley Co., Inc., 552 Massachusetts Ave. $193,400. Awarded 2/16. CD 2/9.

La., Lake Charles—SWIMMING POOLS—Lake Charles Recreation Comn., c/o contractor, 3 swimming pools, to Emmett Young, Inc., Box 765, $142,997. Bids 2/13, awarded 2/15. CD 1/25.

La., Tallulah—LIVESTOCK BARN—J. M. McLemore Livestock Market, Inc., c/o L. T. Lee, Tallulah, livestock barn. Owner builds. $75,000.

† **Ohio**—RAILROAD RELOCATION—U. S. Eng., Madison Ave. and 8 St. W., Huntington, W. Va., relocating B. Tilmore & Ohio R. R. Dillon Reservoir, grading appurtenant work, CIVENG-46-022-50-41, to Cedell Constr. Co., Inc., Winchester, Ky., $935,956. Bids 1/17. CD 1/27, under LB.

† **Oklahoma**—RAILROAD RELOCATION—U. S. Eng., Box 61, Tulsa, 15.6 mi. relocating K. O. & G. Ry. across Fort Gibson Reservoir, CIVENG-34-066-50-87 to Hunter Const. Co., Ada, $924,116, est. $1,500,000, bridges on railroad relocation for K. O. & G. Ry. across Fort Gibson Reservoir to Austin Bridge Co., 1813 Clarence St., Dallas, Tex., $507,086, est. $700,000. Bids 1/28, awarded 2/7. CD 2/7, under LB.

† **Oregon**—RAILROAD RELOCATION—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., 3,420 tons railroad rail and joint bars, tie plate, track bolts, track spikes and other contractor's mill material for Union Pacific Ry. relocation in connection with McNary Dam, Wallula, CIVENG-45-164-50-73, and furnishing track materials for Spokane, Portland, Seattle Ry. relocation, McNary Dam and Reservoir Proj., Hover, CIVENG-45-164-50-74, to Colorado Fuel & Iron Corp., P.O. Box 1920, Denver, Colo., $369,243 and $793,014 respectively. Bids 1/20. CD 2/16, under LB.

Tex., Houston—DRIVE-IN THEATERS—Claude Ezell & Assoc., 2031 Jackson St., Dallas, two 800 auto capacity drive-in theatres, one Humble Rd. area and other Clinton Dr. E. Houston Area, to Jordan Constr. Co., 2031 Jackson St. Approx. $250,000 each. CD 12/20.

Tex., Snyder — GATHERING SYSTEM—Pan American Pipe Line Co., M. Esperson Bldg., Houston, crude oil pipe line gathering sys. in Kelly Pool area, force account. Approx. $100,000. CD 2/10.

▲ **Que., Montreal**—CONCRETE PIPE—City, J. A. Mongeau, clk., concrete pipe, Contr. 30, to Pressure Pipe Co. of Canada Ltd., 6905 Clanranald Ave., $1,281,370. CD 2/21, under LB.

Proposal Advertisements see pp. 91 to 93

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OFFICIAL PROPOSALS

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SEND COPY TO OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 18, N. Y.

Bids: March 20, 1950 (610)

Erection & Construction of a Building

SEALED proposals will be received by the Trustees of the Jaycee War Memorial Fund at the offices of the Owner at 223 West Fourth St., until 9 a.m. on the 20th day of March, 1950, at which time the bid will be publicly opened for the furnishing of materials and the performance of all labor required for the erection and construction of a building on the property of the Owner on the Southwest corner of 21st St. and Main St., Tulsa, Oklahoma, in accordance with plans and specifications prepared by Harry A. Morris, Architect.

Plans and specifications may be obtained at the office of the Supervising Architect at 2614 E. First St., Tulsa, Oklahoma, upon deposit of a certified check in the amount of $50.00 made payable to the Trustees of the Jaycee War Memorial Fund for one set of plans which deposit will be refunded to all bona fide bidders upon receipt of plans and specifications in good condition. Non-bidders will be refunded $25.00 upon receipt of their plans and specifications in good condition. Additional sets of plans and specifications may be obtained by payment to the Trustees of the Jaycee War Memorial Fund $25.00 per set which amount will be retained by them as reimbursement for the cost of additional printing.

Plans will be on file at the following locations:

Donald H. Honn, Supervising Architect, 2614 East First Street, Tulsa.

U. S. J. C. Offices, 223 West Fourth Street, Tulsa.

F. W. Dodge Corporation, 220 Elliot Building, Tulsa, Oklahoma.

Each bid shall be accompanied by a certified check, payable to the order of Owner, or by other security approved by Owner, in amount equal to not les than five percent (5%) of the amount of bid. This security is given as a guarantee that bidder to whom the contract is awarded will enter into a contract with Owner for construction of project; furnish required statutory and performance bonds and insurance certificates within ten (10) days after notice of award, unless a longer time is given by Owner in writing, and in the event of failure to do so, there shall be paid to Owner the sum of five per cent (5%) of said bid as liquidated damages.

No bidder may withdraw his bid for a period of ten (10) days after the opening date.

The Owner reserves the right to reject any or all bids and to waive informalities or minor irregularities in any bid.

TRUSTEES OF THE JAYCEE
WAR MEMORIAL FUND
By John Armbruster

Bids: March 29, 1950 (601)

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Chapter 62 Laws of 1936, as amended, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 29th day of March, 1950, by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the elimination of the following Grade Crossings in Steuben County.

Con. No.	Type	Name of highway and miles	Deposit for plans	Bid Deposit	Dept. est.
PSC, Relocating R. Elimination 9418 R. tracks; pav- of grade ing streets with cement conc- crete pavt. & Asph. Conc. opt., including 20 R. R. Br. Structures 3 Pedestrian Subways; 2 Hwy. Br. Structures & Incidental Drainage and Misc. Work		crossings of the Erie R. R. and the D.L. & W. R.R. with various sts. and N.Y.C. R.R. in the City of Corning and vicinity 8.2 miles	$20	$500,000	$8,767,155

Maps, plans, specifications, and estimates may be obtained at the office of the Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineer H. F. Brumm, 50 West Main Street, Hornell, N. Y., and may be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract containing 1 to 15 sheets is $5.00, 16 to 30 sheets, $10.00; over 30 sheets, $100.00. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by cash, draft or certified check payable to the order of "State of New York Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: March 13, 1950 (662)

Furnishing & Delivery of Centrifugal Pumps

NOTICE TO BIDDERS

Sealed proposals for the furnishing and delivery of 6-12 mgd. single stage centrifugal pumps direct connected to 600 h.p., 3 P., 60 C., 2300 V. synchronous motors, and 2-12 mgd., Single stage centrifugal pumps connected to 600 h.p., 3 P., 60 C., 2300-V synchronous motors with Hydraulic couplings will be received by the City Purchasing Agent at his office, Room 36, City Hall, No. 20 South Fitzhugh Street, Rochester 14, N. Y., until 11:00 o'clock A.M., Eastern Standard time on March 13th, 1950, at which place and time they will be publicly opened and read aloud.

Bidding sheets, specifications and contract may be obtained at the office of the Purchasing Agent upon deposit of $5.00 which will be refunded providing the specifications are returned in good condition within 10 days after the opening of bids.

All bids shall be made on the form provided with the specifications and shall be accompanied by a Certified check for an amount equal to five per centum (5%) of the total amount of the bid, payable to the City of Rochester, N. Y., as a guarantee that the bider will execute the contract within ten (10) days after being notified that his bid has been accepted.

No proposal will be accepted by the city unless the Bidder shall have filed with the Purchasing Agent, at least seven days prior to the date set for the opening of bids a certified statement showing financial responsibility, experience, plant and equipment on a form supplied by the City Comptroller and available at the office of the Purchasing Agent.

The Purchasing Agent reserves the right to reject any or all bids.
Dated: Feb. 20th, 1950.

FRED W. ERETH
Purchasing Agent

Bids: March 17, 1950 (612)

Furnishing Reinforcing Steel

CONTRACT 164

SEALED PROPOSALS addressed to The Board of Contract and Supply of The Metropolitan District and endorsed "CONTRACT 164—PROPOSAL FOR FURNISHING REINFORCING STEEL" will be received at the Executive Office of The Metropolitan District, 115 Broad Street, Hartford, Connecticut, until 2:15 P.M., Eastern Standard Time, Friday, March 17, 1950, at which time and place they will be publicly opened and read.

The contract consists of furnishing about 675 tons of reinforcing steel (deformed bars).

Specifications may be obtained on and after March 6, 1950, at the Office of the Deputy Manager and Chief Engineer of The Water Bureau of The Metropolitan District, 2 American Row, Hartford, Connecticut.

Each proposal must be accompanied by a certified check for an amount covering not less than ten per cent. (10%) of the total amount bid, made payable to The Metropolitan District, and a satisfactory surety bond, as stated in the Information for Bidders, for the total amount bid will be required of the successful bidder for the faithful performance of the contract.

BOARD OF CONTRACT AND SUPPLY,
By: Richard Dillon, Clerk.

Hartford, Connecticut,
February 20, 1950.

Bids: April 6, 1950 (602)

Water Treatment Plant

NOTICE TO BIDDERS

Sealed proposals for the construction of a water treatment plant will be received by the Board of Trustees of the Village of Westfield, New York, at the Municipal Building, 23 Elm Street, until two o'clock P.M., E.S.T., on the 6th day of April, 1950.

Information for bidders can be obtained at the office of the Superintendent of Water Works at Westfield, New York, or the office of Williams S. Lozier Company, Engineers, 10 Gibbs Street, Rochester, New York. Copies of plans may be obtained from the Engineers upon the payment of $10.00 for each set, which will not be refunded.

The work consists of the construction of a filter plant with capacity of 2,000,000 gallons per day and a reinforced concrete reservoir with capacity of 1,400,000 gallons and the optional construction of a garage.

W. H. Roelden, Clerk-Treasurer
Westfield, New York.

(Continued on page 92)

OFFICIAL PROPOSALS
(Continued from page 91)

Bids: March 15, 1950 (617)

State Road Work

Sealed proposals will be received by the State Highway Department at its offices, Dover, Delaware, until 2:00 P.M., E.S.T., March 15, 1950, and at that time and place publicly opened for Contracts involving the following approximate quantities:

CONTRACT 815
Federal Aid Project S-71 (2)
Seaford to Atlanta
Sussex County
Cement Concrete Widening
5.730 Miles

6.10	A. Clearing
6.10	A. Grubbing
18,500	C. Y. Excavation
400	C. Y. Borrow Pit Stripping
7,500	C. Y. Selected Borrow
7,180	C. Y. C. C. Pavement
250	S. Y. Patching
1,000	L. F. 12" R. C. Pipe
575	L. F. 15" R. C. Pipe
120	L. F. 18" R. C. Pipe
40	L. F. 24" R. C. Pipe
145	L. F. 30" R. C. Pipe
40	L. F. 36" R. C. Pipe
8,600	S. Y. Sodding
200	Gal. R. C. 1 Asphalt
200	Gal. R. C. 3 Asphalt
10	T. Slag Chips
10	T. Crushed Chips
6,000	L. F. Ditching

CONTRACT 1030
Federal Aid Project F-113 (3)
Charles W. Cullen Bridge
Indian River Inlet
Sussex County
Concrete & Steel Deck Structure
Fenders & Draw Span Protection

21	M. Ft. Creosoted Timber Structures
500	C. Y. C. C. Masonry (Piers)
170	C. Y. C. C. Masonry (Slab)
398	L. F. C. C. Handrail
58,000	Lb. Reinforcing Steel
235,000	Lb. Structural Steel
783	Each Shear Lugs
15,800	L. F. Creo. Timber Piles (Fender)
6,700	L. F. Steel Piles (Furnished)
6,100	L. F. Driving Steel Piles
65	Each Steel Pile Splices
2	Each Loading Test Piles
287,000	Lb. Steel Sheet Piles
1,100	L. F. Wrought Iron Pipe Pile Protection
500	T. Rip-rap
175	L. F. Wrought Iron Handrail
	L. S. Removal Conc. Pier 16-C
	L. S. Removal Existing Structure
5	Each Removal Broken Piles
	L. S. Repairs to N. Approach
	L. S. Alterations to Swing Span
4	Each Ties for S. Jetty
	L. S. Electrical Equipment
	L.S. Painting Existing Metal Work

CONTRACT 1066
Federal Aid Project S-70 (3)
Hardscrabble-Concord
Sussex County
W. B. Macadam Widening & Hot-Mix
Asphalt Surface
4.137 Miles

1	A. Clearing
0.7	A. Grubbing
11,500	C. Y. Excavation
20	C. Y. Structure Excavation
300	C. Y. B. P. Stripping
6,500	C. Y. Selected Borrow
6,200	T. W. B. Macadam
9,000	T. Hot-Mix Asphalt
1,160	S. Y. Patching
20	C. Y. C. C. Masonry
2,400	Lb. Reinforcing Steel
540	L. F. 12" R. C. Pipe
490	L. F. 15" R. C. Pipe
360	L. F. 18" R. C. Pipe
40	L. F. 36" R. C. Pipe
290	L. F. 48" R. C. Pipe
120	S. Y. C. C. Gutter
7,100	S. Y. Sodding
250	T. Sand
2,400	L. F. Ditching
	Removal Portion of Bridge

CONTRACT 1074
Federal Aid Project No. S-116 (1)
Appleby Road
New Castle County
Stabilized & Surface Treated Road
1.165 Miles

1	A. Clearing
0.7	A. Grubbing
12,000	C. Y. Excavation
800	C. Y. Borrow
200	C. Y. Borrow Pit Stripping
4,900	C. Y. Selected Borrow
11	C. Y. C. C. Masonry
600	Lb. Reinforcing Steel
720	L. F. 12" R. C. Pipe
160	L. F. 15" R. C. Pipe
280	L. F. 18" R. C. Pipe
75	L. F. 30" R. C. Pipe
30	L. F. 8" C. M. Pipe
50	L. F. 4" Vit. Tile Outlets
20	L. F. 6" Vit. Tile Outlets
40	S. Y. C. C. Gutter
290	L. F. Wood Shoulder Curb
2,000	Lb. Castings
290	L. F. Wire Rope Guard Fence
2	Each End Post Attachments
4,600	S. Y. Sodding
7,450	Gal. R. C. 1 Asphalt
7,450	Gal. R. C. 3 Asphalt
311	T. Slag Chips
311	T. Crushed Chips

CONTRACT 1092
Townsend School Sidewalk
4' C. C. Sidewalk — 0.159 Miles

200	C. Y. Excavation
180	C. Y. Borrow
54	L. F. 12" R. C. Pipe
12	L. F. 8" Cast Iron Pipe
3,270	S. F. 4" C. Sidewalk
185	S. F. 6" C. C. Sidewalk
750	S. Y. Topsoil
0.16	A. Seeding

Contracts 815, 1030, 1066 and 1074 are Federal Aid Projects and will be governed by the provisions of the Federal Aid Highway Act as amended.

The Employment Agency for these Contracts shall be the Delaware State Employment Service, whose offices are located at 601 Shipley Street, Wilmington, Delaware, 307 S. State Street, Dover, Delaware, 5 S. E. Front Street, Milford, Delaware and the Wagamon Building, The Circle, Georgetown, Delaware.

Attention is called to the Special Provisions in the proposals, specifications and contract agreement.

Performance of contract shall commence within ten (10) days after execution of the contract and be completed as specified.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the Department.

Each proposal must be accompanied by a surety bond, certified check, or money to the amount of at least ten (10) per centum of the total amount of the proposal.

The envelope containing the proposal must be marked "Proposal for the construction of State Highway Contract No. . . . . ."

The right is reserved to reject any or all bids.

The contract will be awarded or rejected within twenty (20) days from the date of opening proposals.

Complete sets of plans and specifications may be obtained after March 1, 1950, upon receipt of five dollars ($5.00) for each Contract, which amount will not be refunded.

Make checks payable to the State Highway Department.

STATE HIGHWAY DEPARTMENT
By: J. Gordon Smith, Chairman
M. Allan Wilson, Chief Engineer
Dover, Delaware
February 15, 1950

Bids: March 15, 1950 (614)

State Highway Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Chapter 63, Laws of 1936, as amended, and special provisions for projects financed with federal aid funds (Highway Law), and Public Buildings Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on Wednesday, March 15, 1950 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract containing 1 to 15 sheets is $5.00; 16 to 30 sheets, $10.00; over 30 sheets, $20.00. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT NO. 1				
		G. L. Nickerson, Dist. Engr., 353 Broadway, Albany, N. Y.				
Essex	FASS 50-1	Tahawus-Schroon River, Pt. 1 (Co.Rd.) Proj. No. S1047(2)	4.44	D. S. Bit. Treat. Graded Grav.	$19,000 Plans-$10	$324,000
		DISTRICT NO. 6				
		H. F. Brunn, Dist. Engr., 30 W. Main St., Hornell, N. Y.				
Schuyler		Montour Falls-Steuben Creek Bridges at Genesee and Steuben Streets		Removing Bridge Superstructures from Existing 30' 10" Conc. Slab and 60' Plate Girder	$ 5% of Bid Plans-$5	$12,310
		DISTRICT NO. 7				
		R. F. Hall, Dist. Engr., 444 VanDuzee Street, Watertown, N. Y.				
Jefferson	FARC 50-5	Fargo-Natural Bridge, S.H.-8190 Proj. No. F273(2)	0.55	Reinf. Concrete Slab 25.4' Asp. Conc. Opt. =0.53 Mi. Misc. Work =0.02 Mi.	$5,500 Plans-$5	$99,000
St. Lawrence	RC50-6	Gouverneur-Edwards, Pt. 1, S. H.-1263	0.13	8" Cem. Conc. Pavt. 22'-34' Wide =0.12 Mi. Misc. Work =0.01 Mi. Alpha I-Beam 3 Sp. at 80° Ea.; Alpha =$287.40	$15,000 Plans-$10	$259,000
		DISTRICT NO. 8				
		J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Orange & Rockland	PIP50-1	Palisades Interstate Parkway, Pts. 1&2 (Play Area-Bear Mountain)	3.75	Grading & Structures	$80,000 Plans-$20	$1,581,000
		DISTRICT NO. 10				
		J. J. Darcy, Dist. Engr., Montauk Highway at Little E. Neck Road, Babylon, L. I., N. Y.				
Kings	FA BQE50-1	Brooklyn-Queens Expressway (Cont. 5A Meeker Ave. Structure) Proj. U1066(6)	1.00	Reinf. Conc. Slab & Misc. Work on Existing Struct.	$90,000 Plans-$20	$1,500,000

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by cash, draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated. The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: March 10, 1950 (616)

Alaskan Airports

"ALASKA—Bids open March 16th. Airports at Nunlchik, Dillingham, Kotzebue, Fort Yukon, Seldovia, and Skagway, Alaska, by Territory of Alaska. Contract documents from Director of Aeronautics, P. O. Box 2185, Anchorage, Alaska, upon deposit of $25.00. Plans by Thomas B. Bourne Associates, Inc., Washington, D. C."

(Continued on page 93)

SEARCHLIGHT SECTION

(Classified Advertising)

This index is published as a convenience to the readers. Every care is taken to make it accurate, but Searchlight Section assumes no responsibility for errors.

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Weiss Co., B. M. 98
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OFFICIAL PROPOSALS

(Continued on page 92)

Bids: March 20, 1950 (615)

Slow Sand Filter

CITY OF POUGHKEEPSIE, NEW YORK
BOARD OF PUBLIC WORKS

ADVERTISEMENT AND NOTICE TO CONTRACTORS

Poughkeepsie, New York
February 23, 1950

Sealed proposals will be received by the Board of Public Works of the City of Poughkeepsie, until 5:00 P.M., E.S.T., March 20, 1950 for the construction of Control Chamber and Connections, and Rebuilding Slow Sand Filter No. 4. All bids received pursuant to this notice will be publicly opened and read.

Plans, specifications, form of proposal, bond and contract may be obtained at the office of the Superintendent, Board of Public Works, Poughkeepsie, N. Y., and at the office of Malcolm Pirnie Engineers, 25 West 43rd Street, New York, N. Y. A set of the plans, specifications and contract documents may be had for use in making up a bid by depositing Ten Dollars ($10.00). If a bid is submitted, the deposit will be refunded upon return of the plans and specifications. In case a bid is not submitted, Five Dollars ($5.00) of the deposit will be refunded upon return of the plans and specifications in good condition within two weeks after the date of receiving proposals.

Each proposal shall be accompanied by a certified check for five percent (5%) of the total amount of the proposal made payable to the order of the CITY OF POUGHKEEPSIE. The bidder to whom the contract is awarded will be required to furnish, for the faithful performance of the work under this contract, an approved Surety Company bond in the total amount of the contract awarded.

The right is reserved to reject any or all bids.

BOARD OF PUBLIC WORKS OF
THE CITY OF POUGHKEEPSIE
By: Walter J. Davis
Clerk

Bids: March 14, 1950 (613)

Construction of Structures, Grading, Drainage and Paving

PENNSYLVANIA TURNPIKE
COMMISSION
Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 1st North Fourth Street, Harrisburg, Pennsylvania, until 10:00 A.M. (Eastern Standard Time), the 14th day of March, 1950, and immediately thereafter will be taken to the Public Utility Commission Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and immediately publicly opened and read aloud, for the following contract and/or contracts:

For the construction of structures and the grading, drainage and paving of Turnpike Section 30C, part of the Western Pennsylvania Turnpike Extension in Marshall and Pine Townships, Allegheny County, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point at the Butler-Allegheny County Line in Marshall Township at Turnpike Station 2+20, Allegheny County, thence in an Easterly direction 20,530 feet to a point approximately 534 feet West of Legislative Route 02225 in Pine Township at Turnpike Station 207+50, Allegheny County, a distance of approximately 3.89 miles.

The approximate quantities of the principal items are as follows:

Class 1, Excavation, 614,000 cubic yards; Class 2, Excavation, 19,500 cubic yards; Reinforced Concrete Pavement, 108,500 square yards; Class A Concrete, 4,000 cubic yards; Class B Concrete, 6,370 cubic yards; Steel Reinforcing Bars, 982,500 pounds; Fabricated Structural Steel, 1,010,000 pounds.

For the construction of structures and the grading, drainage and paving of Turnpike Section 30D, part of the Western Pennsylvania Turnpike Extension in Pine, Richland, and Hampton Townships, Allegheny County, Commonwealth of Pennsylvania. This section being being situated as follows:

Beginning at a point approximately 534 feet West of Legislative Route 02225 in Pine Township at Turnpike Station 207+50, Allegheny County, thence in an Easterly direction 27,132 feet to a point approximately 200 feet West of the West track of the Baltimore and Ohio Railroad in Hampton Township, at Turnpike Station 492+25, Allegheny County, a distance of approximately 5.14 miles.

The approximate quantities of the principal items are as follows:

Class 1, Excavation, 1,306,000 cubic yards; Class 2, Excavation, 41,000 cubic yards; Reinforced Concrete Pavement, 143,800 square yards; Class A Concrete, 9,100 cubic yards; Class B Concrete, 9,100 cubic yards; Steel Reinforcing Bars, $1,958,000 pounds; Fabricated Structural Steel, 1,043,000 pounds.

Copies of plans, specifications, and other contract documents, including cross-sections are on file and open to public inspection at the offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on 28 February 1950. Plans, specifications, cross-sections and other contract documents will not be available before this date for inspection or for mailing to prospective bidders. Copies of specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy. Copies of cross-sections may be purchased from the Pennsylvania Turnpike Commission for the sum of fifty ($50.00) per set, for each section.

Plans and contract documents, for each section, exclusive of cross-sections and specifications may be obtained from the Commission upon deposit of ten ($10.00) dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in goodd condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans, contract documents, and cross-sections returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications, contract documents, and cross-sections.

The Pennsylvania Turnpike Commission reserves the right to award each section as a separate contract and/or as a combined contract.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE
COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
February 17, 1950.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation, Sealed bids (Specifications No. 2926) will be received by Bureau of Reclamation, Ephrata, Washington, March 20, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of office building at Ephrata, Washington. The work is situated in the city of Ephrata, Washington. Principal items are approximately: 1,275 cu yds., concrete; 180,000 lbs., furnishing and placing reinforcement bars; 220 barrels, furnishing and handling cement; constructing the office building complete, including plumbing system, electrical system, heating, ventilating, and air-conditioning systems; and other work. Time allowed for completion will be 270 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.
(611)

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CONSTRUCTION SUPERINTENDENT

Large heavy construction firm doing business along Middle and South Atlantic Seaboard is interested in securing the services of a top flight superintendent, thoroughly skilled in waterfront construction and in handling of all types of floating equipment. Work includes cofferdams, pile driving, timber work, concrete construction and steel erection. Steady employment on good sized projects. Fine opportunity for the right man to make a permanent connection with a good salary. Reply

P-2361, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

SALESMAN

Need top flight shovel and crane salesman who can produce in Metropolitan New York area. Will sell one of leading lines. Applicant must state experience, record, age and remuneration expected, in detailed resume for consideration. Our Sales Force has been notified of this ad. All replies held in strict confidence.

SW-2378, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

ESTIMATOR

Wanted by Phila. firm for large sewers, bridges, etc. Must have had experience with contractors in similar work. State salary, experience and when available.

P-2299, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

WANTED
BRIDGE DESIGNERS,
DESIGNER DRAFTSMEN, RESIDENT HIGHWAY ENGINEERS, SOILS ENGINEER

Experienced men wanted. State qualifications, age, salary and date available in first letter. Construction period, 24 months. Location, Eastern or Western Pennsylvania.

P-1817, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

WANTED
CONSTRUCTION SUPERINTENDENT

to become permanent part of established building contractors organization. Give references, outline of experience, salary expected and snapshot.

MILLER-DAVIS CO
1287 Portage St. Kalamazoo, Michigan

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

STRUCTURAL CHECKER-detailer. All type structures. State qualifications, availability. Location East. P-1818, Engineering News-Record.

CARPENTER SUPERINTENDENT, for form construction on concrete dam located in Western Kansas. State age, experience, and salary expected. Elmer C. Gardner, Inc., P. O. Box 252, Ellis, Kansas.

WANTED, CLASS "A" Carpenter Foreman and Superintendent for company specializing in good homes, commercial work, schools, etc. Top wages for one who shows results. West Brothers, 1208 South Bunn, Bloomington, Ill.

WANTED OFFICE Engineer. By large eastern construction firm for general office engineering and quantity survey work. References required. P-2339, Engineering News-Record.

OPERATING PRODUCTION Engineer thoroughly familiar with gyratory and cone crushers, electric and diesel powered shovels and cranes, with proven record for handling production and maintenance men. Must be a driver and have a love for work. Location, New Jersey. Submit full written details, including past salaries. Also wanted, Master Mechanic for quarry and heavy construction equipment with proven record. Also wanted, Foremen and Blast-hole Drillers. Our personnel are aware of this ad. P-2365, Engineering News-Record.

ESTIMATOR. CAPABLE of complete take off. In replying give full qualifications. Age, experience, and salary expected. Reply P-2395, Engineering News-Record.

STRUCTURAL ENGINEER with broad experience in design, detailing and drafting of reinforced concrete for buildings. Must have had experience on slip formed concrete design for grain elevators and cement silos. Ability in estimating and supervision of small number of other engineers desirable. For permanent employment in small office of well established engineering and construction company located in San Francisco. In reply give age, experience record, education, salary desired. P-2386, Engineering News-Record.

DISTRICT MANAGER to travel Southern States selling water works utilities. Must be willing to travel extensively. Permanent position with salary and expenses. Give full details, past experience and salary expected. P-2418, Engineering News-Record.

EXECUTIVE TYPE Engineer by large Wisconsin contractor. Must be able to prepare estimates, close contracts and complete the jobs within the estimate. Company has been established over 50 years and wishes to expand. Sufficient capital available. Specialize in commercial, industrial and public work. Exceptional opportunity for an aggressive young man to establish himself permanently. Should not be much over 40 years old. Reply at once giving age, education and experience. Confidential. Reply P-2422, Engineering News-Record.

ESTIMATOR WANTED by General Contracting Firm located in Pittsburgh, Penna. Applicant to be experienced in estimating all types of General Building Construction. If interested, advise age, education, experience and salary desired. P-2432, Engineering News-Record.

WANTED: MECHANICAL engineer for consulting engineer's office in Northwest. Work includes power plants, industrial piping, heating, ventilation and plumbing. Permanent position for right man. Graduate engineer under 45. Capable of proceeding with minimum supervision. State experience and references in detail, also salary required and when available. P-2448, Engineering News-Record.

ESTIMATOR-ENGINEER In New York State. Experienced in sewer and water lines, concrete, road, excavation and site improvements. Write stating experience, salary expected, and when available. P-2447, Engineering News-Record.

WANTED CONSTRUCTION Superintendent to take charge of Project in Metropolitan Area. Must be qualified to supervise structural, architectural and mechanical installations and utilities. Reply P-2443, Engineering News-Record.

SALARIED POSITIONS $3,500—$35,000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (40 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N.Y.

POSITIONS VACANT

REINFORCING STEEL . . . are you about 30 years old and have worked for a Bar Company? If so, would you like to become identified with a going concern about 100 miles from New York . . . have good proposition for right man. P-2450, Engineering News-Record.

ENGINE REBUILDING SHOP Supervisor—Full knowledge and capable of operating and teaching others to operate precision equipment, such as crankshaft grinders and line boring equipment. Thoroughly acquainted with every operation of engine disassembly, machining, parts replacement and rebuilding. Must have served apprenticeship as all around machinist, qualified to intelligently and efficiently operate this type of department. Starting salary commensurate with ability and experience, plus bonus on profits of department. Give complete details, previous positions, earnings, when available. P-2434, Engineering News-Record.

WANTED, SEVERAL engineering graduates, under 35, by large industrial fire prevention organization maintained by national insurance group for field work involving periodic inspections and special consulting service. Permanent. P-1394, Engineering News-Record.

CIVIL ENGINEER wanted for a responsible permanent position with a large public utility located in eastern Pennsylvania. Must have a broad experience, a substantial portion of which has been in hydraulics. The position presents an excellent opportunity to the right man. Apply by letter stating age, education, detailed experience and salary requirements. P-2275, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service, established 1927, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

MASTER MECHANIC, Equipment Supt., Mechanical Operating Engineer, over twenty-five years' experience with erection, repair and maintenance of heavy industrial equipment, power house, pumping stations and marine equipment, etc., available immediately. Go anywhere. PW-2367, Engineering News-Record.

CHIEF ESTIMATOR for General Contractor Available. Experienced all types General Construction. Current volume $60,000,000 per annum. Base salary $12,000 per year. Excellent references. PW-1813, Engineering News-Record.

CIVIL ENGINEER, 32, graduate, single. Experienced as field engineer and surveyor on highways, pipelines, oilfield. Can do some structural design. Speaks construction Spanish. Desires position with engineer or contractor in Latin America. PW-2340, Engineering News-Record.

ESTIMATOR WIDE experience all types buildings, concrete and masonry structures, wants new connection, with an established General Contractor. Business management and engineering background. Now located Washington, D. C. Thirty years experience in construction as Superintendent, Estimator and Engineer. Prefer smaller company not loaded with unproductive overhead where a thorough knowledge of construction will pay dividends. PW-2341, Engineering News-Record.

(Continued on page 95)

SOUTHWEST TERRITORY

Personal contact representation for responsible construction firm. Full knowledge of Engineering and construction offered. Offices in East and West Texas.

RA-2421, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS WANTED
(Continued from page 94)

MASTER MECHANIC, equipment superintendent or shop foreman, age 41, experienced supervisor of maintenance, repair and operation of all makes of heavy equipment, excellent references as to ability, location immaterial. PW-2376, Engineering News-Record.

PROJECT MANAGER, or Construction Supt. available immediately, 45, married, 22 years experience supervising construction products, Industrial, mechanical, commercial, waterfront, water and sewerage systems. Organize and supervise field and office. Sober and reliable. Education Civil Engineer. PW-2377, Engineering News-Record.

CONSTRUCTION ENGINEER - Manager 20 years experience with two companies in charge of large and small projects. Experience all phases industrial and commercial construction. Thorough knowledge estimating, specifications, bid preparation, sub-contracts, job coordination and field inspections. College graduate. PW-2177, Engineering News-Record.

CIVIL ENGINEER desires to locate in deep south or southwest with steel erector as Erection Engineer. Wide experience in heavy construction including erection of steel structures. Age 35, married, BSCE, now employed. Salary and advancement of equal importance. PW-2401, Engineering News-Record.

SUPERINTENDENT OR Supervisor. Graduate Experienced power plant, chemical plant, varied industrial construction. Commercial pilot. PW-2407, Engineering News-Record.

GENERAL SUPERINTENDENT — 50 — A-1 executive always in top salary bracket. Former employers will say worth it. 25 years responsible charge major buildings and heavy construction. College graduate. Address PW-2403, Engineering News-Record.

PROJECT MANAGER-General Superintendent. 25 years experience all types of construction. Hospitals; schools; office buildings; factories; docks; new and alteration work. Capable of organizing and coordinating entire project projects. Splendid record for speed and quality of work. Held in high regard by all architects and owners of all projects. Available May 15th. PW-2415, Engineering News-Record.

B.S., M.S., age 39, varied design and field experience, structures. Well-acquainted with S. America; Chile, Colombia; also continent, particularly Spain. Tolerably French; good Spanish. Seeks employment with engineering organization active outside of States. PW-2446, Engineering News-Record.

GRADUATE CIVIL Engineer; 28; married; three years experience with contractor and engineer desires permanent position with a contractor. Prefer mid-west location. PW-2438, Engineering News-Record, 520 N. Michigan Ave., Chicago 11, Ill.

CIVIL ENGINEER Graduate, 29, single, one year construction experience, nine months sanitary engineer design experience, four months experience as transit man on pipe line. Desire foreign or domestic construction work. PW-2417, Engineering News-Record.

ELECTRICAL DESIGNER, Draftsman, field engineer, 12 years exp. design and supervision chem. and industrial plant installation. PW-2458, Engineering News-Record.

PART TIME WORK WANTED

STRUCTURAL DESIGNING—Steel and concrete buildings, structures, foundations. Wide experience. Complete service. Satisfaction guaranteed. PTWW-2315, Engineering News-Record.

BUSINESS OPPORTUNITIES

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long established and active land surveying business. Substantial proof to volume of business, etc. BO-2241, Engineering News-Record.

Registered Surveyor-

Engineer desires association with established engineer considering retirement. East preferred. Give full details. BO-2287, Engineering News-Record.

PERSONAL

Would like

to know present whereabouts of A. F. Ensrud, Structural Engineer. Richards T. McKay, 1066 Berry St., Houston 4, Texas.

PATENT ATTORNEY

Patent Practice

before U. S. Patent Office. Validity and infringement investigations and opinions. Booklet and form "Evidence of Conception" forwarded upon request. Lancaster, Allwine & Rommell, Registered Patent Attorneys. Suite 454, 815-15th Street, N. W., Washington 5, D. C.

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W-2439, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

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USED MODEL 80
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Large Crawler Crane 2-2½ yd. Capacity 100 ft. Boom plus 20 ft. Jib. Must be in good condition. Give Description, Boom Length, Age, Location and Price in reply.

W-2433, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

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Portable pontoon type hull. Capacity 150 c. y. fine sand per hour. 18 Ft. digging depth. Diesel power.

W-2444, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

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1—8" A. P. Smith (1925) High Pressure, pinion geared horizontal valve with drilled flanges (12 holes 7/8" diameter straddle center).
1—8" A. P. Smith (1925) High Pressure, vertical valve one flange blank, other flange drilled (12 holes 7/8" diameter straddle center).

Bids may be obtained in the Division of Central Purchase, Room 9B, City Hall, Newark, New Jersey. Market 3-3232. Closing date, Tuesday, March 7, 1950.

Meyer C. Ellenstein, Director
Department of Revenue & Finance
Harry J. Aston, Director
Div. of Central Purchase

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1¼—1½-yd 50' clam boom for Lorain, Lima or Northwest.
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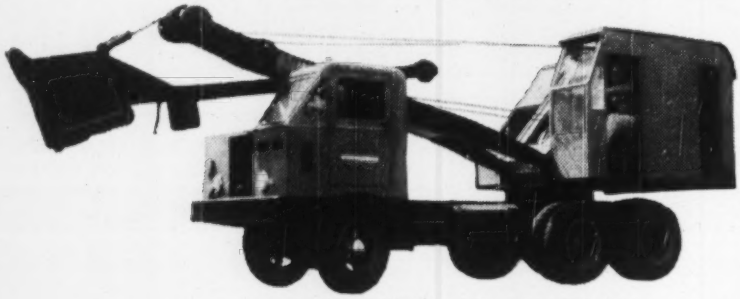

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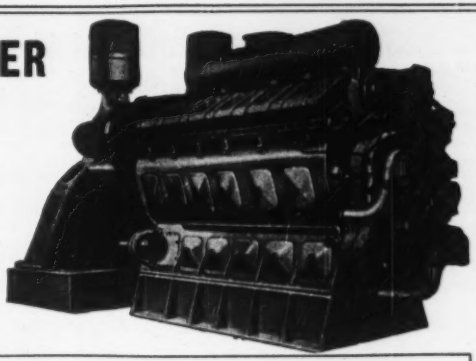

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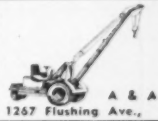

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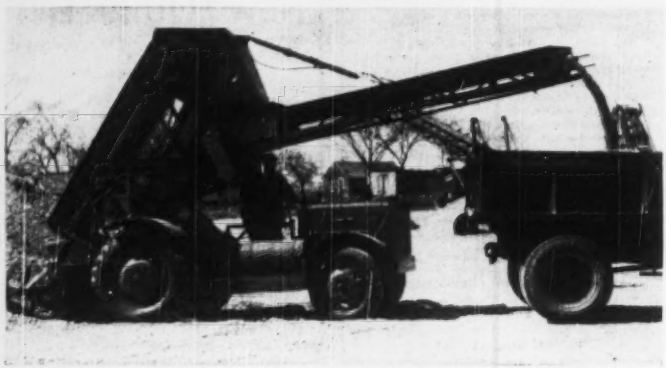

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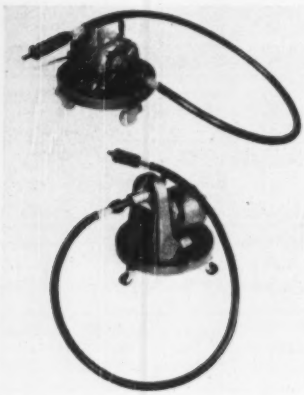

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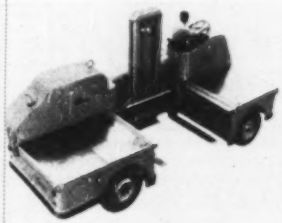

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Side-loading hydraulic Traveloader lifts, loads, unloads, stacks, and hauls loads up to 30,000 lb. in weight at speeds up to 30 mph. In operation, a hydraulic lift tower slides out 72 in. to insert its forks under the load. The load is then brought aboard by hydraulic power, and deposited on the platforms. Unit will stack to any height up to 12 ft. Two retracting stabilizer jacks permit safe handling of maximum weights. Tower tilts 5 deg in or out. All power is supplied by a rear-mounted engine, either gasoline or diesel. Attachments are available for specialized handling problems. —Lull Mfg. Co., 3612 E. 44th St., Minneapolis 6, Minn.

Roof-Surfacing Material

Double-action material for roof insulation and protection consists of a thick, creamy liquid of aluminum flakes bound to fine asbestos fibers by a waterproofing base and held in suspension by the special booster. Abesto Fiberated Lumiclad provides a reflective insulation value on the top of the roof, and an equal reflective in-

(Continued on page 106)

Here's a Good Tip for Everyone who wants to reduce Maintenance on Waste and Vent Lines

It's safe to say that *every* building with sanitary facilities has a corrosion problem . . . and that unless proper safeguards are used, you'll soon be paying for repairs, with replacement not far ahead.

Two of the worst trouble-makers are waste and vent lines. They are exposed to multiple attack from water . . . organic wastes . . . oxygen from the air . . . carbon dioxide . . . and sewer gases, which include ammonia and hydrogen sulfide. Any one of these is a dangerous enemy to pipe life. In combination, they represent a major hazard, and the only practical protection is through the use of a corrosion resistant material.

Wrought iron has been used in these severe services for long periods, and its superior durability

has been certified by service records of 50 years or more. In one study of a number of old buildings, wrought iron vents were still serving in one building after 49 years —in two after 48 years . . . and in three others after more than 45 years. In contrast, in a group of eleven buildings where low-first-cost materials had been used for vents, the life *to failure* averaged less than 23 years. In another study of a group of buildings over 20 years old, the engineer estimated the depreciation as 20% for the wrought iron vents, and 90% for the other material. Similar impressive performance figures support the choice of wrought iron for waste lines.

You'll find the reason for wrought iron's unusual durability in its unique composition and structure. Tiny fibers of glass-like silicate slag, threaded through the body of high-purity iron, halt and disperse corrosive attack, and so discourage pitting. Furthermore, the fibers help

to anchor the initial protective scale, which shields the underlying metal.

Our bulletin, WROUGHT IRON FOR PIPING SYSTEMS discusses the corrosion problems encountered in sanitary lines, and gives the results of several engineering studies. You'll find this book a big help in selecting piping for maximum life and minimum cost in waste and vent lines, as well as in other services. Ask for a complimentary copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, Salt Lake City, San Francisco. Export Division: New York, N. Y.

CORROSION COSTS YOU MORE THAN WROUGHT IRON

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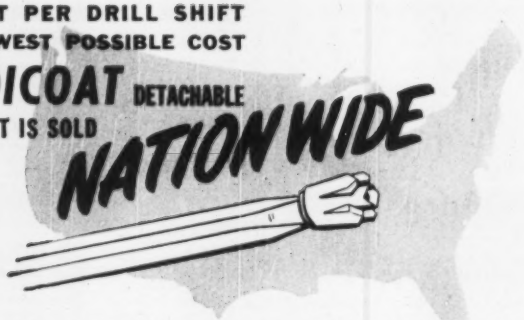

The Liddicoat Bit has been developed and proven in Canada, where it has been in use for many years. Its outstanding performance in drilling, the ease of connection and the low cost have made this detachable bit the most widely used in Canada today. Since its introduction to the United States, it has rapidly gained popularity and is being adopted by the largest mining and contracting companies.

Here are 3 of the many reasons why more and more contracting men are turning to the Liddicoat Bit:

- Use to destruction - no resharpening
- Drills by cutting - not grinding
- Ease of attachment and detachment

The Liddicoat Bit is a forged extrusion, uniformly hardened with 10,000 cycle induction machines, bringing low initial cost, low drilling costs. Investigate - - then buy the Liddicoat Detachable Rock Bit.

WESTERN ROCK BIT MFG. COMPANY

Manufactured for sale in the 11 western states, the Philippines and Alaska by Western Rock Bit Mfg. Co., 552 W. 7th So., Salt Lake City.

CALUMET HECLA CONS. COPPER CO.

Manufactured for sale in the 37 eastern states by Calumet - Hecla Consolidated Copper Company of Calumet, Michigan, U. S. A.

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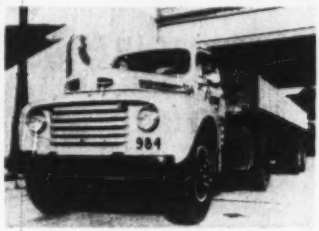
sulation on the under side of the coating to hold heat in during cold weather. Coverage is from 100 to 200 sq.ft./gal. depending upon the condition of the roof. It may be applied by brush or power spray equipment.—Abesto Corp., Wabash & Second, Michigan City, Ind.



Ford Trucks for 1950

Ford trucks for 1950, available in 175 models, offer 21 engineering, design, and manufacturing advancements. Four engines are available—95-hp 6-cylinder truck engine; the 100-hp V-8; 145-hp V-8; and the recently developed 110-hp six. A 4-speed synchro-silent transmission which eliminates double clutching is standard on the 110-hp six. The F-6 and F-5 series have 176-in. wheelbases for bodies in the 14-ft range. The F-7 and F-8 have 147-in. wheelbases for tractors and dump trucks, and a 178-in. wheelbase for 14-ft. bodies. Also available are the F-3 series with wheelbases from 104 and 122 in., and the F-5 with 134-in. wheelbases. Gross vehicle weight range from 4,700 lb to 39,000 lb.—Ford Motor Co., Ford Division, Dearborn, Mich.

Moisture-Proof Metal Primer

Led-Chroxide is a multi-purpose moisture-proof metal primer blended from red lead, zinc chromate, and iron oxide in combination with a specially developed vehicle. It forms a tough highly impermeable, and rust-resistant film which provides an ideal foundation for finish coats. Dries tack free in 2 to 3 hours; overnight for finish coats. Coverage is 500 to 600 sq. ft./gal. Is said to not check, peel, or crack, and can be applied by brush or spray.—Thomson-Porcelite Paint Co., 330 Race St., Philadelphia 6, Pa.

Mechanical Shaft Seal

Positive seal for installation on equipment moving or transferring liquids provides a mechanical means for prevention of leaks around rotating shafts. The Peerless seals are available in three general classifications—standard, abrasive-resistant, and special. Of the cartridge type, unit construction makes for easy replacement and

maintenance. Maximum pressure recommended is 400 psi.; higher pressures require a special balance check. Seals can be furnished for application to all rotating shafts from ¼ to 3-in.—Peerless Pump Div., Food Machinery & Chemical Corp., 301 West Ave. 26, Los Angeles 31, Calif.

Flame Combustion Safeguard

Combustion safeguard for boilers, kilns, fuel-fired furnaces, and other heating equipment detects the presence or absence of a gas or oil flame on any type of burner. The 1300 Series Flame-otrol uses the flame itself as the link to provide instantaneous switching action.—Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

Lubrication-Systems Pump

Portable, high-pressure Centro-Matic bucket pump is designed for use with Centralized single-line lubrication systems. The Model 1808 has a 30-lb. lubricant capacity, and includes a Flex-O-Matic coupler with adapter for assembly to the manifold inlet of the most easily accessible bank of injectors. When lubricant has been discharged to all bearings, operator raises pump handle which automatically relieves line pressure in the system, permitting injectors to reload. A check, incorporated in the coupler, holds lubricant in system when nipple on hose is disengaged.—Lincoln Engineering Co., 5702-20, Natural Bridge Ave., St. Louis 20, Mo.

Pipe and Bolt Threader

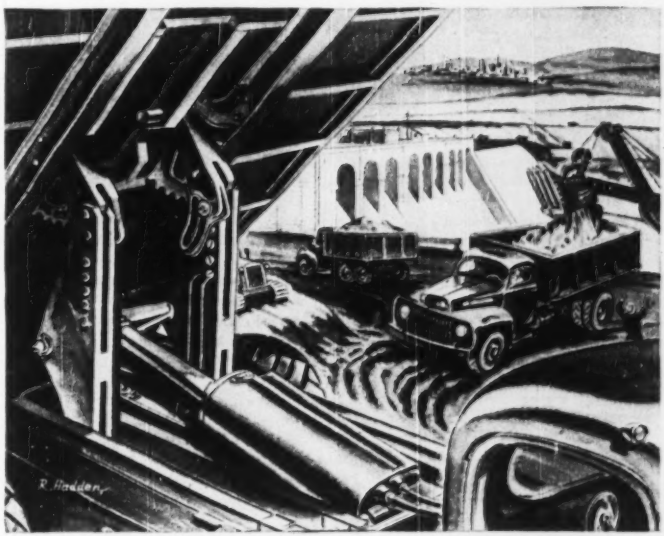
Feature of the Quijada Chief is four front jaws that automatically grip the pipe, and four rear jaws that automatically center it to eliminate whipping. Chucks are operated automatically when the push-pull switch is actuated. An improved reamer, attached to each head, reams while threading. When proper length of thread is cut, a bell rings, notifying operator to open die head. Cutter assembly is mounted conveniently for cutting off immediately after making up fittings. The Chief weighs 160 lb., and will handle pipe from ¼ to 2 in. in dia.—Quijada Tool Co., Inc., 5474 Alhambra Ave., Los Angeles, Calif.

GALION Allsteel

HOISTS and DUMP BODIES are "Job-Engineered" For maximum payload service

For fast, economical handling of loads from 2½ to 25 tons, equip trucks with Galions. Over the past 25 years they have earned a reputation among contractors and operators to stand up best even on the toughest materials handling jobs. And Galion's improved equalizing double lift arm hoists are unparalleled for dependable maintenance-free service. To speed up 1950 material handling contracts see your local truck dealer or Galion distributor about Galions' "job-engineered" superiority or write for bulletin G 49.

The GALION Allsteel Body Co., Galion, Ohio



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JENKINS PRACTICAL PIPING LAYOUTS 48

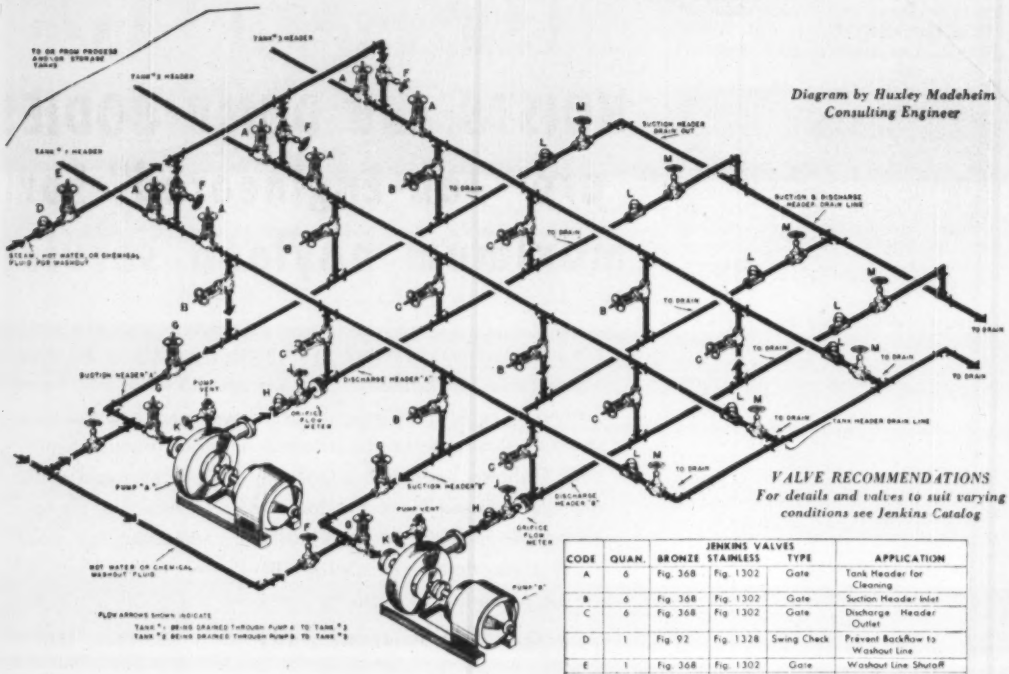
TO OR FROM PROCESS AND/OR STORAGE TANKS
TANK "1 HEADER
TANK "2 HEADER
TANK "3 HEADER
STEAM, HOT WATER OR CHEMICAL FLUID FOR WASHOUT
SUCTION HEADER "A"
SUCTION HEADER "B"
PUMP "A"
PUMP "B"
PUMP VENT
ORIFICE FLOW METER
DISCHARGE HEADER "A"
DISCHARGE HEADER "B"
SUCTION HEADER DRAIN OUT
SUCTION & DISCHARGE HEADER DRAIN LINE
TANK HEADER DRAIN LINE
TO DRAIN
HOT WATER OR CHEMICAL WASHOUT FLUID
FLOW ARROWS SHOWN INDICATE
TANK "1 BEING DRAINED THROUGH PUMP A TO TANK "3
TANK "2 BEING DRAINED THROUGH PUMP B TO TANK "3

Diagram by Huxley Madeheim
Consulting Engineer

VALVE RECOMMENDATIONS
For details and valves to suit varying conditions see Jenkins Catalog

CODE	QUAN.	JENKINS VALVES BRONZE	STAINLESS	TYPE	APPLICATION
A	6	Fig. 368	Fig. 1302	Gate	Tank Header for Cleaning
B	6	Fig. 368	Fig. 1302	Gate	Suction Header Inlet
C	6	Fig. 368	Fig. 1302	Gate	Discharge Header Outlet
D	1	Fig. 92	Fig. 1328	Swing Check	Prevent Backflow to Washout Line
E	1	Fig. 368	Fig. 1302	Gate	Washout Line Shutoff
F	5	Fig. 106-A	Fig. 1308	Globe	Individual Washout Shut-offs to Tank Headers
G	4	Fig. 368	Fig. 1302	Gate	Pump Suction Shutoffs
H	2	Fig. 92	Fig. 1328	Swing Check	Prevent Backflow to Pump
J	2	Fig. 106-A	Fig. 1308	Globe	Pump Discharge Control
K	2	Fig. 106-A	Fig. 1308	Globe	Pump Vent Control
L	7	Fig. 92	Fig. 1328	Swing Check	

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In many industries transfer of fluids within a plant is a major operation. The flexible Pumping Station layout shown allows fluids to be pumped from tank to tank or to any processing equipment.

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This may be done by means of steam, hot water or chemical solutions, depending upon the fluids carried. Check valves should be installed on drain lines to prevent destructive backflow into the headers. The valve recommended for this layout is the Fig. 106-A, Jenkins Renewable Composition Disc, Bronze Globe Valve, which assures drop-tight closure.

Consultation with accredited piping engineers and contractors is further recommended when planning any major piping installation.

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MANUFACTURERS' PUBLICATIONS

Lubrication Equipment—How to keep construction machinery properly serviced at all times is the subject of Lincoln Catalog 30. It illustrates and describes compact mobile lubrication departments to meet any requirement, shows how to reduce lubrication time to a minimum, and how to eliminate contamination and waste of lubricants. —Lincoln Engineering Co., 5702-20 Natural Bridge Ave., St. Louis 20, Mo.

Electric-Powered Excavators — Three bulletins describe the Marion Types 151-M, 4161, and 111-M Ward-Leonard electric machines. Bulletin 393-A describes the 6½-yd 151-M which can be used as either a shovel or dragline. Bulletin 394-A describes the 5-yd 4161 which is also convertible to shovel or dragline service. Bulletin 399 describes the 111-M which is convertible to service as a shovel, dragline, clamshell crane, or coal loader. The 111-M carries a 3¼-4-yd dipper as standard equipment. — Marion Power Shovel Co., Marion, Ohio.

Iron-Armored Concrete Floors—Illustrated booklet (36 pp) emphasizes nine features of the Masterplate iron-armored concrete floor surface. Job pictures show several typical installations. Detailed directions are given for laying Masterplate floors as new construction or for resurfacing old floors.—The Master Builders Co., 7016 Euclid Ave., Cleveland, Ohio.

Glass-Cloth Electrical Tape — Four-page bulletin describes electrical tape produced with a glass-cloth backing. The bulletin lists several possible installations where "Scotch" brand tape is especially recommended because of certain qualities including fireproofness and thermosetting adhesive which sets at 250-deg in 2 hours. The glass cloth is unaffected by moisture, will not shrink, stretch, or rot, and has a tensile strength of 150 psi.—Minnesota Mining & Mfg. Co., 900 Fauquier St., St. Paul 6, Minn.

Stationary Diesel — Specifications for more than one hundred diesel engines are listed in 20-p. Bulletin 4812. These range in power from a naturally aspirated 6-cylinder 175-hp engine to a supercharged 8-cylinder 1,500-hp unit. —The National Supply Co., Superior Engine Division, Springfield, Ohio.

Rolling Scaffolds—How to put workers at job levels, safely, is the subject of a new 4-p. bulletin describing the Trouble-Saver sectional rolling scaffolds. Bulletin PSS-14 describes and illustrates a variety of arrangements of prefabricated steel sections; shows typical installations with methods for assembling units to various space, height, and shape requirements; and describes the erection advantages and safety features of these scaffolds.—Patent Scaffolding Co., 3821 Twelfth St., Long Island City 1, N. Y.

Elevated Steel Tanks—Water storage in elevated steel tanks is discussed in 16-p. illustrated catalog. This catalog describes steel tanks, shows photographs of several built by the company, and discusses factors to consider in selecting an elevated steel tank. Complete dimension and capacity figures are provided for tanks with various cross-sections. — Pittsburgh-Des Moines Steel Co., Neville Island P. O., Pittsburgh 25, Pa.

Hard-Surfacing Materials — Rods and electrodes for gas and arc-welding hard-surfacing materials are listed in Catalog B-1. Feature of the catalog is a listing of nearly 200 recommended applications cataloged by industries. Specific types of welding material to be employed are listed with each application.—Rankin Mfg. Co., 3072 W. Pico Blvd., Los Angeles 6, Calif.

Steel-Frame Construction — Motion-picture film tells the story of steel-frame construction of modern buildings showing fabrication and erection processes. It depicts fire protection, safety, strength, and other features of this type of construction. It is printed on 16-mm full-color film and has a showing time of 25 min.—American Institute of Steel Construction, Inc., 101 Park Ave., New York 17, N. Y.

Froth Flotation—Industrial and chemical applications of froth flotation are the subject of a new bulletin. Potential uses for flotation include water purification, recovery of wastes, correcting stream pollution, and lowering the BOD of waste liquors. The bulletin contains a complete description of the process and how it is applied to the various uses.—Denver Equipment Co., Dept 1418, 1400 Seventeenth, Denver 17, Colo.

Long-Span Joists — All-welded steel joists with spans varying from 25 to 72 ft and with load capacities of 200 to 700 lb/lineal ft are described in a 12-p.

(Continued on next page)

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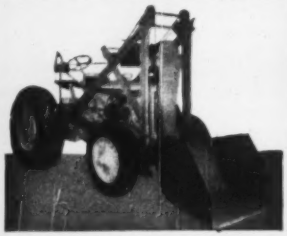

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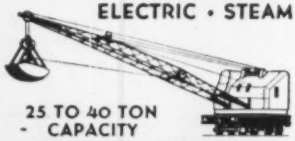

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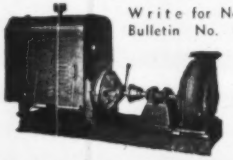

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catalog. Data listed in Catalog S-100 cover special features, table of safe uniform loads, basic joist designs, typical details, special designs, and specifications. — DOMINION BRIDGE CO., LTD., P. O. Box 280, MONTREAL, QUEBEC, CANADA.

Tractor Equipment—Complete line of equipment for International tractors is described in a new Isaacson bulletin. The Isaacson bulletin lists angle and straight-blade hydraulic Trac-Dozers; angle and straight-blade Kable Trac-Dozers; Kable power units; cable-operated Karry Skrapers in five models; single and double-drum Winchoists; Karry Arch and Karry-Kart for high-speed logging; the Klearing Blade equipped with long teeth to speed clearing, combing and leveling operations; Kable or hydraulic super rooters; the inside Trac-Dozer; and Fas-Tamp rollers.—ISAACSON IRON WORKS, 2900 E. MARGINAL WAY, SEATTLE, WASH.

Unitair Compressors – Sixteen-page catalog is profusely illustrated with pictures of all sizes of the Joy WL-80 compressor, as well as sectionalized drawings to point out its various features. Selector chart simplifies choosing a compressor to meet individual requirements. The Unitair is available in eleven sizes, 15 to 125 hp, with piston displacements from 81 to 640 cfm at 125 lb maximum pressure. They can be provided with gasoline, diesel, or electric drive.—JOY MFG. CO., HENRY W. OLIVER BLDG., PITTSBURGH 22, PA.

Bituminous-Surface Sealing – Folder contains several answers to the question: Should a bituminous pavement be sealed? It discusses reasons for sealing blacktops; the use of Meco surface seal; action of the sealer; how it is applied; and similar informative data. The folder illustrates and describes several typical applications of Meco, and lists results and advantages gained by its use.—MAINTENANCE ENGINEERING CO., 16 W. JOHNSON ST., PHILADELPHIA 44, PA.

Horizontal, Vertical Drills—Comprehensive catalog (25 pp.) presents various combinations of post and machine-mounted drills. Designed for quick reference, the catalog features selector tables cross-indexed to facilitate making up matched-set assemblies for horizontal and vertical drilling under specific conditions. Clear, precise drawings of the various types and sizes of tools are accompanied by specification data arranged to present clearly the basic information needed.—CENTRAL MINE EQUIPMENT CO., 6200 N. BROADWAY, ST. LOUIS 15, MO.

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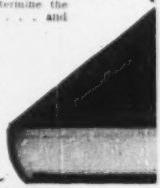

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Letter from . . .

PITTSBURGH

The nation's steel capital these days is bubbling over with plans for remaking the city on a scale that befits its position. Not only the engineers but virtually every resident seems to be sold on the idea—sold to the point of crusading.

Taxi drivers and the cops on the corner take pride in pointing out a great gaping hole in the ground on William Penn Way, where the Mellon-U. S. Steel building will go.

The engineers, in fact, show a little emotional letdown. The projects that some of them have been fighting for and about for 12 years or more are suddenly on the way—with the signing recently of agreements between the Equitable Life and City.

But the plans are there—and they call for an expenditure that may top $100 million in a few years.

• **Bold Scheme**—What's planned is so bold and so sweeping that it's worth a quick review. Very few cities have the problem Pittsburgh has: Its famous "Golden Triangle" is composed, actually, of only 300 acres—but in this area many thousand people work; here are almost all the major stores and theaters, and here, daily, come some 44,000 automobiles. Streetcars clang through some of the narrowest and most crooked streets of any major U. S. City, and here some of the oldest and most dilapitated business buildings are still occupied.

Like many another city, Pittsburgh was strangling itself. Industry unable to expand threatened to move out, stores would have to follow. As City Traffic Engineer Don McNeil says:

"Pittsburgh is the hub—and the hub needed grease and needed it badly."

So, the landowners and the merchants and the engineers and the labor unions and the city officials finally got together to prevent one of the most valuable pieces of real estate in the world from deteriorating further. Through the Allegheny Conference, sparked by Civil Engineer Park H. Morton, and backed by the financial power of Pittsburgh's millionaires, they finally listened to the plans of the engineers and the city planners.

And this is what's going to happen:

Through the Pittsburgh Urban Redevelopment Authority, 23 of the acres containing the worst congestion in the triangle are being taken over; the state will take over 36 more.

Every structure in the area (and some of them are substantial) will be wrecked and cleaned out. A 23-acre belt stretching between the Monongahela and Allegheny Rivers will house three or four huge office buildings. The rest of the area will become a park, with off-street parking garages, underground parking garages, new highways to relieve the intolerable congestion at the point of the Triangle, and new bridges. Trolley and bus lines will be rerouted.

It's a mammoth face-lifting job.

• **Authorities**—The city can't swing it all—even with the help of the moneyed citizens—so it has resorted to authorities for help. Given a green light when the state legislature passed the "Pittsburgh package" in 1947, citizens set up the Redevelopment Authority, a Parking Authority, the County Sanitary Authority.

These, and city and state activities in connection with them, are coordinated through the Allegheny Conference, so they keep off each others' toes and plans. With a promotional job to do, Pittsburghers made sure everybody was in the act.

The Parking Authority, under McNeil, is moving fast. It already has plans for its first four garages (they'll provide off-street space for 2,100 cars in multi-storied structures) and expects to sell bonds and get construction under way by summer. These garages will cost over $4,000,000. Two others—one underground in a new park behind the William Penn Hotel—will have to await more detailed redevelopment planning. Eventually, they'll provide off-street space for 25,000 cars daily.

The Redevelopment Authority, prodded by Jack Robin, its leader, goes beyond the "point" development. Authorized to take over decadent areas and redevelop them for any proper use, it has pitched in the keep the huge Jones & Laughlin steel mill on the city's south side. The authority will condemn 120 sub-standard acres of land next to the J & L plant, give 30 acres to J & L for its use, develop the rest for light industry.

The sanitary authority is still designing. It hasn't sold bonds yet, and hasn't started any construction. But on the strength of a $2,000,000 appropriation from the city, its going ahead with plans for a county-wide sewer system. Politics and financial troubles still beset this agency—many of the county townships are dubious about joining big Pittsburgh in this scheme.

• **That's not all**—There's plenty more going on in town—enough to make it one of tomorrow's big construction areas.

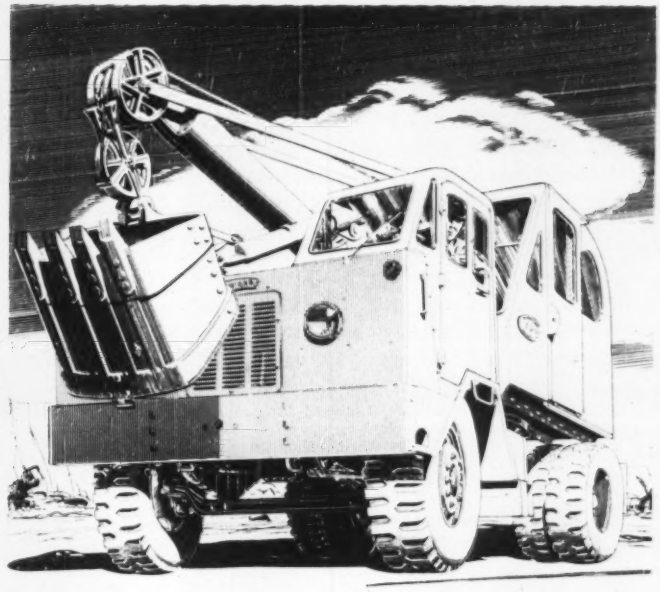
For instance, there's a traffic study due for publication within a month or so that'll include recommendations for widening streets, eliminating streetcar lines, new bus routes and the like.

Two Veterans' hospitals are now going up under direction of the Army's Col. C. P. Hardy, district engineer. The city's Housing Authority plans some 3,000 new units for the year, mostly in apartments. New parkways are still being planned—including the one to the city's new airport in Moon Township. The previously mentioned Mellon-U. S. Steel building will be air conditioned throughout, and may have radiant-heated sidewalks (the staid old Duquesne Club already has these). ALCOA is planning a new building downtown.

And one of the most remarkable jobs is that of smoke abatement. Cooperation of the railroads (which have mostly dieselized) and the home owners, has brought the city's world-famous smog under control. A power company man says "there hasn't been a 70,000 kilowatt fog here since the ordinance went into effect."

Allegheny County, too, is awaiting the result of a two-week engineering survey of the 700-odd bridges and culverts it owns. A lot of them will have to be replaced or repaired.

A busy spot, Pittsburgh.



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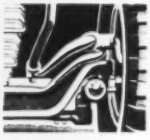
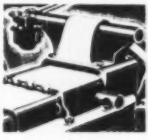
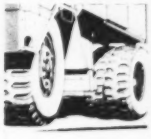


EASY STEERING
Heavy duty worm and roller steering gear, 20-inch steering wheel, minimize steering fatigue and help you thread through traffic easier, get around on the job faster.

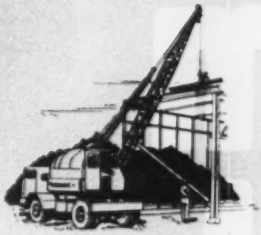


EASY SHIFTING
Smooth meshing gears, no "fighting" the shift-lever or clutch pedal. Auxiliary transmission provides multiple speed range for every highway condition, for tough off-the-road travel.



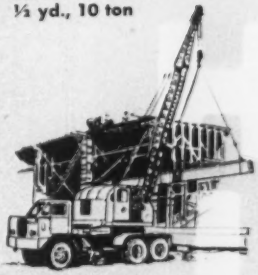
POSITIVE TRACTION
Big, traction-tread tires easily pull you through deep sand, mud or heavy snow without delays. Their high-flotation takes you over soft ground with far less chance of bogging down.

COMFORTABLE CAB
Operators like it! Plenty of leg and elbow room for big men. Wide angle visibility through big, rubber-set windshield and windows. Familiar, automotive-type controls.



Model T6K
¾ yd., 6 ton

Model TMDT-16
½ yd., 10 ton



Model TLDT-20
12 ton

Series 8
½ yd., 8 ton

Model C-16
½ yd., 8 ton

New low-priced grader features tandem drive on TIMKEN® bearings!

THE new Allis-Chalmers model "D" motor grader is a low-priced machine with several big-grader features.

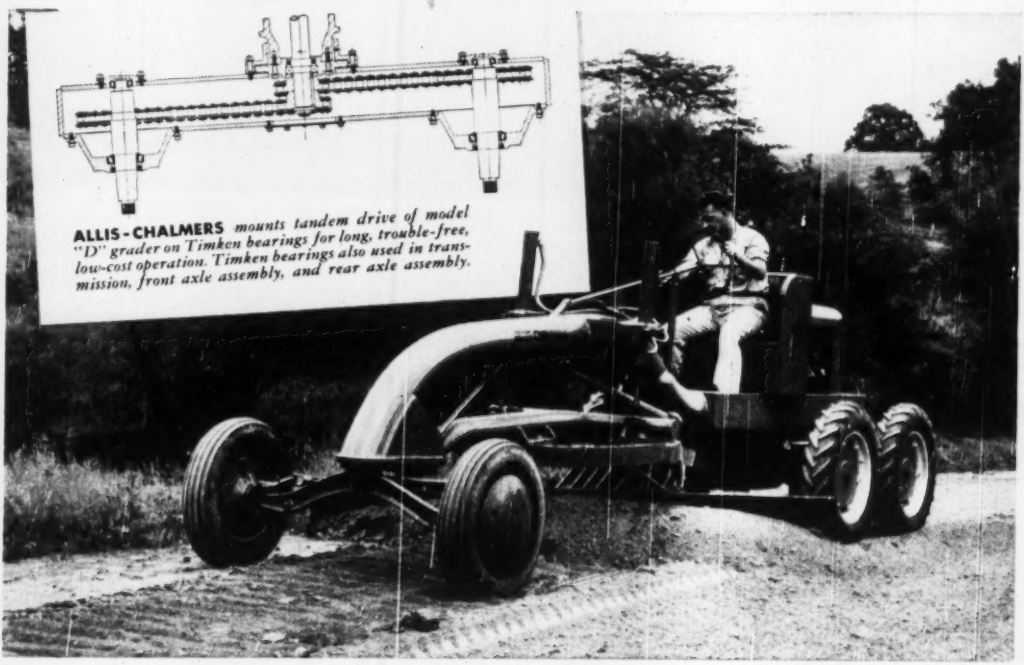
One of these is the tandem rear-wheel drive that gives greater driving power for bigger loads. This drive is mounted on Timken® tapered roller bearings to insure smooth, trouble-free operation, minimum maintenance and long life.

Because Timken bearings have a tapered design, they take radial loads, thrust loads, and combinations of both. Line contact between rolls and races gives them extra load capacity. They're made of special analysis Timken alloy steel—case hardened for extra toughness inside and extra hardness outside.

Timken bearings hold shafts in rigid alignment and maintain original precision. They reduce wear on adjacent parts and minimize friction. They permit tighter closures that keep the dirt out—lubricant in. They reduce maintenance and normally last the life of the machine.

It pays to make sure the machines you build or buy are Timken bearing equipped. Always look for the trade-mark "Timken" on the bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



ALLIS-CHALMERS *mounts tandem drive of model "D" grader on Timken bearings for long, trouble-free, low-cost operation. Timken bearings also used in transmission, front axle assembly, and rear axle assembly.*

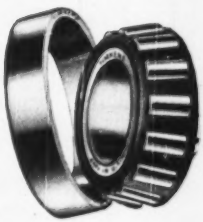
POSITIVE ROLLER ALIGNMENT

Wide area contact between roll ends and rib of the cone prevent Timken rollers from skewing. Result: bearings roll easier, last longer.

The Timken Company is the acknowledged leader in: 1. advanced design; 2. precision manufacture; 3. rigid quality control; 4. special analysis steels.

TIMKEN

TAPERED ROLLER BEARINGS



NOT JUST A BALL — NOT JUST A ROLLER — THE TIMKEN TAPERED ROLLER — BEARING TAKES RADIAL AND THRUST — LOADS OR ANY COMBINATION